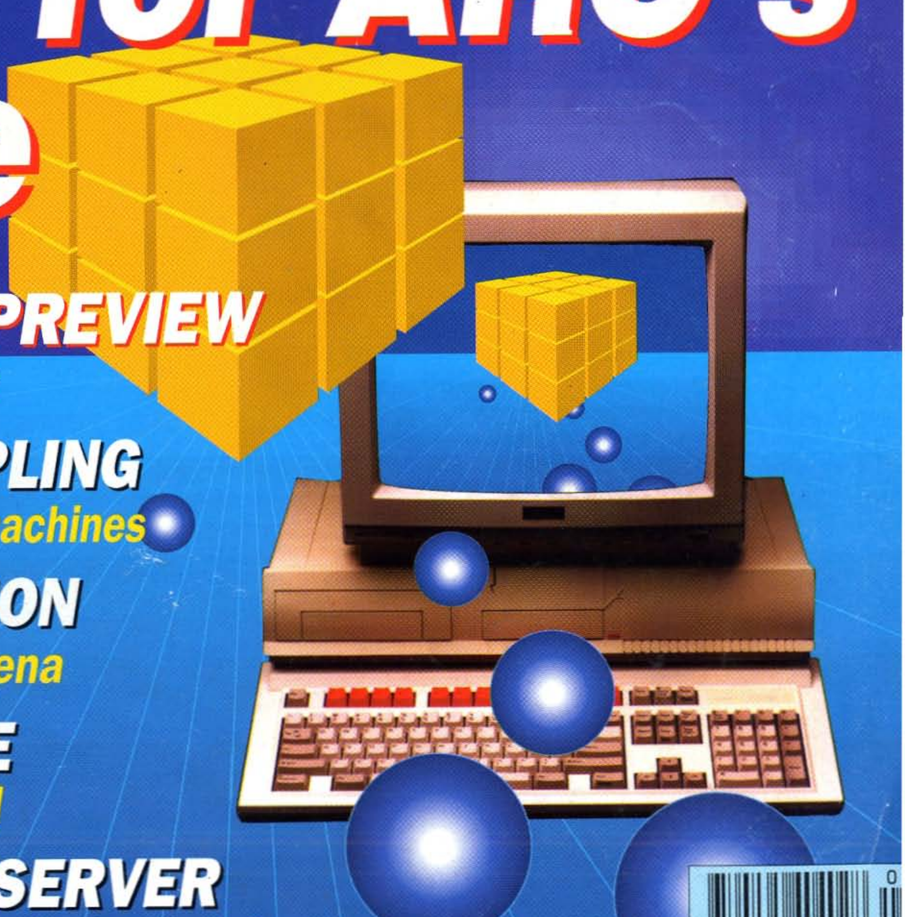
THE MICRO USER

THE BIGGEST MOST READ MAGAZINE FOR ACORN MICRO USERS

Volume 9 Number 11 January 1992

ART for ARC's sake



EXCLUSIVE PREVIEW
3D Construction Kit

SOUND SAMPLING
Software for 8 bit machines

ARCADE ACTION
Enter the battle arena

C'S A BREEZE
Write like the wind

SCREEN PRESERVER
Protect your 8 bit micro's monitor

For ALL users of the BBC Micro, Master and Archimedes series

MORLEY E·L·E·C·T·

SPECIAL OFFER

0% finance available.
We will try to match or better any advertised offer.

Archimedes

THE WORLDS MOST POWERFUL MICRO

A3000	£599
410/1	£1099
420/1	£1299
440/1	£1699
The Learning Curve	£699
Arc. Learning Curve	£1299
A3000 Special Access	£679

MEMORY EXPANSION

THE BEST VALUE MEMORY UPGRADES

Unlike most other cards, our expandable card can be upgraded from 1MB to 3MB at a later date for maximum flexibility.

A3000 1MB Expandable	£69
A3000 1MB Non-Exp.	£59
A3000 3MB Upgrade	£179
A3000 1MB to 3MB	£140
305 1/2 MB	£69
400 Series 1MB	£50

ARCHIMEDES PERIPHERALS

Acorn Colour Monitor	£199
Microvitec CUB3000	£189
Mono Monitor	£73
A3000 Monitor Stand	£20
A3000 User & Midi Port	£49
Serial Upgrade	£19
Econet Upgrade	£49
Acorn ROM Podule	£56
300 2 Slot Backplane	£37
300 4 Slot Backplane	£59
300/400 I/O Podule	£85
300/400 Midi Podule	£69
300/400 3.5" Drive	£115

LEADS & MISC. HARDWARE

Arch SCART Monitor Lead	£8
Arch 9 Way Msync Lead	£8
Arch Serial Lead	£8
Arch Printer Lead	£6
BBC Printer Lead	£6
2 to 1 Printer switch	£20
3 to 1 Printer switch	£30
4 to 1 Printer switch	£36
64k Printer Buffer	£115
256k Printer Buffer	£199
EPROM Eraser	£18
Eraser with Timer	£23
5.25" Floppy Discs x10	£5
3.5" Floppy Discs x10	£10
27128 Blank EPROMs	£3

A3000 BBC ANALOGUE & USER PORT PODULE

Full specification BBC analogue and user port. The analogue port is accessible using ADVAL from BASIC5 with all BBC OSbyte calls supported.

£59

As Supplied to Acorn for their A3000 Special Access Package

CROSS-32 META-ASSEMBLER

Table driven macro cross-assembler supporting over 30 processors with the facility to add more.

Phone for data sheet. £175

ArcTools

Fully RISC OS compliant disc utility package. Various features including:

- Multiple file & directory manipulation (deleting, searching, setting access rights, file types etc.)
- System information (including computing index)
- File editor (both ASCII & hex)
- Disc Editor (both ASCII & hex)

£19

ARCHIMEDES & A3000 HARD DISK DRIVES

FREE ARCTOOLS WORTH £19 WITH EVERY HARD DISC DRIVE

SCSI HARD DISK DRIVES

INTERFACES

A3000 SCSI Podule	£169
400 SCSI Podule	£149

SCSI DISK DRIVES

Including SCSI podule, drive, cable & leads. A3000 drives also include drive case and switch mode power supply.

A3000 20MB	£289
A3000 50MB	£379
A3000 100MB	£499
400 20MB	£219
400 50MB	£299
400 100MB	£449
Larger Drives POA	

Morley's SCSI and ST506 drives are among the fastest available. The podules are 16 bit and we only use fast, quality disk mechanisms. Phone for full details.

ST506 HARD DISK DRIVES

INTERFACES

A3000 ST506 Pod. Kit	£99
305/310 ST506 Podule	£149

ST506 DISK DRIVES

Including ST506 podule, drive, cable & leads. A3000 drives also include drive case and switch mode power supply.

A3000 20MB	£249
A3000 40MB	£349
A3000 55MB	£489
305/310 20MB	£299
305/310 40MB	£389
305/310 55MB	£474

BBC / MASTER SCSI DRIVES

Completely compatible with BBC Bs, B+s and Masters fitted with ADFS. Free utility disc including Format, Verify, Archive and Park.

20MB incl. interface	£399
30MB incl. interface	£449
40MB incl. interface	£499

MORLEY HOUSE, WEST CHIRTON, NORTH SHIELDS, TYNE & WEAR, NE29 7TY. TEL (091) 257 6355. FAX (091) 257 6373

R·O·N·I·C·S · L·T·D

CONTROL ON THE A3000

SPARKLE

Sparkle is a fully RISC OS compliant control package for the A3000 & Archimedes allowing full control of input, output and motor devices via most control boxes.

Sparkle is a simple language which gives users full access to control boxes as well as the ability to use analogue equipment and simulate inputs & outputs in a variety of ways. Data & frequency logging and counting & timing facilities are also provided as standard.

Sparkle	£59
Site Licence	£200

AnDi ODDULE

The AnDi Oddule is a low cost control box for the A3000 & Archimedes. There are 8 input/output connections, 4 analogue to digital inputs and 1 digital to analogue output. The box connects directly to an I²C connector (as on our Analogue & User Port interface) or can connect to a standard podule socket via an optional adaptor. The box can be controlled directly via RISC OS SWI calls or using Morley's Sparkle control software.

AnDi ODDULE	£49
Optional Adaptor	£8

ALFRED ROBOT ARM

The Alfred Robot Arm is designed to provide a low cost solution to the teaching of the principles of robotics in schools, colleges and industrial training departments.

The system is structured to provide on-going education by introducing expansion modules, therefore always updating the system to meet mew technology demands.

The complexity of exercises that can be carried out will benefit school children who are being introduced to robot technology or technical college students requiring an in-depth understanding of industrial robots. **£330**

TELETEXT

THE MORLEY TELETEXT ADAPTER

BBC/Master	£104
Compact	£120
RML Nimbus	£104
Archimedes	£125
Optional PSU	£9.50
Upgrade from BBC to Archimedes	£35

MASTER CARTRIDGES

Dual 2 x 16k	£10
Quad 4 x 16k	£14
Dual 2 x 32k	£12

SMART CARTRIDGE

Built-in features include:
- Freeze program at any point.
- Screen dump (any mode).
- Allows most protected software to be backed up including disc to tape and tape to disc. **£40**

BBC / MASTER EPROM PROGRAMMER

The fastest, best value programmer in the market.

Totally software controlled.

Programmes 27128/2764/27256 EPROMs: 12 and 21 volt.

Includes full ROM management software with numerous features **£40**

EPROM utility disc. Put all your favourite routines into sideways ROM, both basic and machine code. **£7**

BBC / MASTER DISC DRIVES

Single 40/80 switchable	£79
Dual 40/80 switchable	£169
Power Supply	£40

A3000 ADDITIONAL DRIVES

A3000 3.5" SECOND DRIVE

- Easy to install - simply plug in and run.
- High quality Japanese drive.
- Incl. full fitting kit (with one drive) and instructions **£125**

A3000 5.25" SECOND DRIVE

Kit includes:
- 5.25" 40/80 track drive
- Case
- Power supply
- Interface and leads **£169**

A3000 DISC BUFFER

Supports up to three external drives
Fully buffers all external drives
Software control of step rate and double stepping of 5.25" drives
Allows drive numbers to be changed from software **£48**

MASTER ROM EXPANSION BOARD

THE ULTIMATE ADD-ON FOR ALL SERIOUS MASTER USERS

No more need to switch your computer off to insert a cartridge containing a required ROM.

With 2 cartridges and a ROM board, a staggering 32 ROM images installed.

Allows an additional 8x16k and 4x32k ROMs to be installed in the Master and still leaves the cartridge slots free.

Master control ROM which includes a clever file transfer program allowing files to be transferred between DFS and ADFS formats or vice-versa. **£49**

As well as manufacturing quality peripherals for over six years, Morley is an Acorn Dealer & Service Centre. This advertisement only covers a small range of the products we offer. If there is anything you want that you do not see advertised please phone for a competitive quote.

ALL PRICES EXCLUDE VAT & CARRIAGE. DATA SHEETS AVAILABLE FOR MOST PRODUCTS.

THE MICRO USER

Publisher
Robin Wilkinson

Features Editor
Steve Turnbull

Art Editor
Mike Bailey

News and Reviews Editor
Pam Turnbull

Technical Editor
Mike Cook

Chief Sub Editor
Alan McLachlan

Senior Advertising Sales
Emma Barr

Advertising Sales
Jonathon Lea

Advertising Production
Andrew Southam

Marketing Manager
John Weir

Circulation Manager
David Wren

Systems Manager
Dave Stewart

Tel: 0625 878888 (All depts.)
051-357 2961 (Subs.)

Telex: 94081191
Fax: 0625 879966

europress PUBLICATIONS

Europa House, Adlington Park,
Macclesfield SK10 4NP.

Chairman
Derek Meakin

Managing Director
Peter Glover

Advertising Director
John Snowden

ABC 23,135
January-June 1991

The Micro User welcomes new program listings and articles for publication. All material should be supplied on disc or tape and printed. Please enclose a stamped, self-addressed envelope, otherwise the return of material cannot be guaranteed. Contributions accepted for publication will be on an all-rights basis.

The Micro User is an independent publication and neither the BBC nor Acorn Computers Ltd are responsible for any of the articles in this issue or for any of the opinions expressed.

© 1992 Europress Publications Ltd. No material may be reproduced in whole or in part without written permission. While every care is taken, the publishers cannot be held legally responsible for any errors in articles, listings or advertisements.

News Trade Distribution: UMD 071 700 4600

EXCLUSIVE

3D Construction Kit

We preview this powerful new package that you can use to build your own virtual realities – plus you can get a demo version to experiment with from this month's subscription disc. See Page 38

SPECIALS

99 **Screen Blanker**
Protect the monitor of you 8 bit Micro from burned-in images. *

103 **Basic Help**
Find out what your latest program is doing with this handy sideways ram utility. *

111 **Arena:6502** *
Try your reflexes in this original type-in game full of the best arcade action.

127 **Quickeys**
Upgrade your BBC Micro to an Electron with a handy keyword entry routine. *

FREEBIES

Would you like some commercial software for the Risc OS machines for free? Find out how you can get it on Page 13.

Type-it-in

This symbol * indicates that the feature contains at least one full length listing for you to key in on your micro.

Get it right ✓

All the major listings in this magazine are accompanied by checksums to help you key them in correctly.

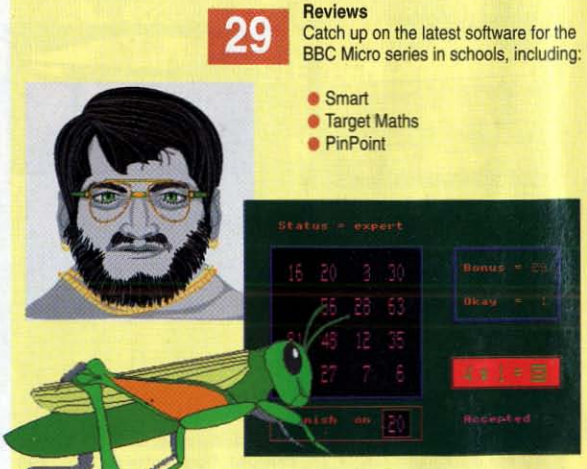
For full details of how to use them see the article on page 56 of the February 1991 issue.

EDUCATION

27 **Update**
Up-to-the-minute news of the Acorn range of micros in use in the world of education.

29 **Reviews**
Catch up on the latest software for the BBC Micro series in schools, including:

- Smart
- Target Maths
- PinPoint



***REGULARS:* News 11 ● Hac Man 20 ● PD**

Essential Archimedes

Make your learning curve even easier with our four how-to-do-it series for all Archimedes users.

74 **DTP**
Learn the fundamentals of page layout and design.

76 **Spreadsheets**
Explore cells and functions to manipulate numbers.

78 **Databases**
Discover how to handle information technology.

80 **Object drawing**
Find out how to create pictures that can easily be altered.

LET'S COMPUTE!

Simple sections that teach you the basics of computer programming

60 **Rom & Ram**
Learn all about the principles of programming in BBC Basic. *

62 **Safe Scientist**
The Mad Professor is in the thick of it with density. *

NEWCOMERS

67 **ICS Utilities**
Three programs that make it even easier to use your Risc-based machine.

71 **Typing Tutors**
We compare two typing tutors and see how well they fare under practical use.

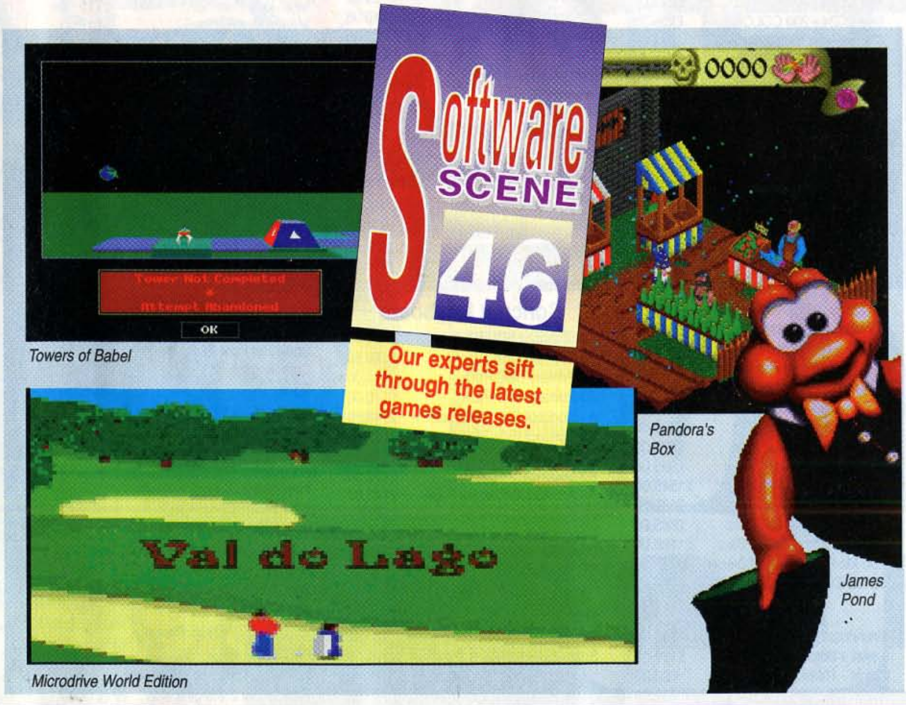
83 **Twilight**
Monitor protection is all the rage – now you can do it in style and with multiple graphics.

121 **Glimpse**
Peek at those sprite and draw files on your disc, and choose the one you want.

123 **Scanlight 256**
We put the latest hand scanner software through its paces and check out its features.

131 **HiLighter**
Can this new product bring understanding and ease of use to the world of Hypermedia?

Hilighter
Hilighter
Hilighter



Software SCENE 46

Our experts sift through the latest games releases.

Towers of Babel

Pandora's Box

James Pond

Microdrive World Edition

THE MICRO USER

Subscribe for less than £20

Yes, you can have a full year's subscription to *The Micro User* for a fraction of the usual cost – check out this amazing offer on Page 140.

On this month's subscription disc you'll find all the magazine listings relevant to your machine. Plus, those readers with a BBC A3000 or Archimedes series machine will also get:

- Exclusive 3D Construction Kit demo
- Exclusive 3D Construction Kit game
- Virus Killer, version 2.30
- Plus tons of PD software

NEXT MONTH IN THE MICRO USER

We take a close look at laser printers, find out how to print numbered raffle tickets and there are lots of handy utilities for all Acorn machines plus our PD section full of great money-saving ideas.

Page 35 ● Body Building 55 ● Problem Solved 107 ● Letters 137

☎

061 766 8423

Phone lines open :-
Mon - Fri 09.00 - 17.00
Sat 10.00 - 17.00

FAX: 061 766 8425

Acorn Hardware

A540 inc. 4Mb Ram, 120Mb HD, Arm3, Taxan 775	£2495.00
A5000 inc. 2Mb Ram, 40Mb HD, Arm3, Acorn Multiscan Monitor	£1499.00
A5000 Learning Curve as above c/w Audio Training Cassette, Guide to National Curriculum, Acorn Applications Suite, Pacmania, PC Emulator , Genesis, 1st word Plus, Acorn DTP	£1531.06
A5000 LC / Acorn Printer as above c/w Acorn JP150 Inkjet Printer	£1765.96
A420/1 2Mb Ram, 20Mb HD	£1099.00
A410/1 c/w 2Mb Ram, 20Mb HD upgrade fitted by ourselves	£899.00
A3000 c/w 2Mb Ram fitted	£599.00
A3000 Learning Curve as above c/w Audio Training Cassette, Guide to National Curriculum, Acorn Applications Suite, Pacmania, PC Emulator, Genesis, 1st Word Plus	£642.29
A3000 LC / Acorn Monitor as above c/w Acorn Colour Monitor	£855.05
A3000 LC / Acorn Monitor / Acorn Printer as above c/w Acorn JP150 Inkjet Printer	£1089.95
A3000 Special Access Acorn Serial Upgrade, Morley User/Analogue Expansion Card, Acorn Software Suite, Utilities Disc, SEMERC & ACE Special Needs Handbook	£795.00
A3000 Special Access / Acorn Colour Monitor / Stand as above c/w Acorn Monitor and Pres Monitor Stand	£1053.50
Master 128	£399.00

We operate the Acorn Teachers and 0% Finance Schemes

Please call for free information pack

A540 Upgrades

4Mb Ram Upgrade	£369.00
Taxan 795 VIDC Modes Disc	£7.50
Technical Reference Manual	£65.00

A5000 Upgrades

2Mb Ram Card	£129.00
Technical Reference Manual	£65.00

A400 Upgrades

1 Mb Ram	£35.00
2 Mb Ram	£65.00
3 Mb Ram	£99.00
20 Mb Hard Disc (ST506)	£99.00
40 Mb Hard Disc (ST506)	£245.00
5.25" Ext. floppy disc int.	£30.00
ARM 3 Upgrade (Aleph 1)	£289.00
Econet Module	£46.00
VIDC Enhancer	£29.00

A3000 Upgrades

1 Mb Ram (2 Mb in total)	£55.00
4 Mb Ram	£159.00
5.25" External f/disc buffer	£39.00
Serial Upgrade	£19.00
Serial Link Kit (BBC-Arc)	£14.00
User & Analogue Podule	£46.00
User & Midi Podule	£46.00
VIDC Enhancer	£29.00

Expansion Cards

ArVis S-VHS Video Board	£295.00
ArVis S-VHS Encoder Board	£145.00
ArVis Video Graphics Board	£877.00
Chroma 345 Overlay Board	£389.00
Econet Module	£46.00
Ethernet Expansion Card II	£249.00
Floating Point Expansion Card	£449.00
Hawk V9 Video Digitiser	£199.00
I/O Expansion Card	£79.00
Midi Upgrade to I/O Card	£27.00
Midi Expansion Card	£65.00
ROM Expansion Card	£45.00
SCSI Expansion Card (Acorn)	£229.00

Standard Monitors

Acorn Colour	£199.00
Microvitec Cub 3000	£199.00
Philips CM8833 II	£199.00
Philips Mono (Green)	£85.00

All monitors come with free lead. State type of computer when ordering.

Multiscan Monitors

EIZO 9060SZ Flexiscan	£419.00
EIZO 9070SZ Flexiscan *	£599.00
Taxan 775 Multivision	£389.00
Taxan 795 Multivision *	£449.00
Taxan Viking II Mode 23	£749.00

* comes with free VIDC enhancer.

Floppy Disc Drives

5.25" Single 40/80 no psu	£95.00
5.25" Single 40/80 with psu	£109.00
5.25" Dual 40/80 no psu	£185.00
5.25" Dual 40/80 with psu	£199.00
3.5" Single with psu	£85.00
3.5" + 5.25" 40/80 with psu	£209.00

Printers

Canon Bubblejet BJ-10e	£239.00
Sheetfeeder for BJ-10e	£59.00
Citizen 120D+	£114.00
Citizen Swift 9	£169.00
Citizen Swift 24e	£239.00
Colour Kit for above	£39.00
Citizen PN48 Portable	£249.00
Star LC20	£130.00
Star LC200 Colour (9 pin)	£189.00
Star LC24 - 200	£219.00
Star LC24 - 200 COLOUR	£259.00
Sheetfeeder for LC24 - 200	£69.00
Integrex Colourjet 132	£519.00
HP Paintjet	£795.00
Laser Direct (Qume)	£819.00
Laser Direct (LBP4 Hi Res.)	£899.00
Laser Direct (LBP8 Hi Res.)	£1289.00

Oak Products

Worra Winnie (SCSI)

20 Mb Internal Hard Disc	£299.00
45 Mb Internal Hard Disc	£399.00
80 Mb Internal Hard Disc	£599.00
100 Mb Internal Hard Disc	£795.00
200 Mb Internal Hard Disc	£1195.00
20 Mb External Hard Disc	£349.00
45 Mb External Hard Disc	£449.00
80 Mb External Hard Disc	£649.00
100 Mb External Hard Disc	£845.00
200 Mb External Hard Disc	£1245.00

High Speed Range (SCSI)

40 Mb Internal Hard Disc	£495.00
80 Mb Internal Hard Disc	£675.00
100 Mb Internal Hard Disc	£995.00
200 Mb Internal Hard Disc	£1545.00
45 Mb External Hard Disc	£685.00
80 Mb External Hard Disc	£865.00
100 Mb External Hard Disc	£1185.00
200 Mb External Hard Disc	£1735.00
60 Mb Tape Streamer	£795.00

Econet

Broadcast Loader	£60.00
Level 4 Software	£199.00
Cable - 100m	£90.00
Econet Starter Kit	£80.00

Printer Drivers

Midnight Graphics

Citizen Swift 9 Sprite Dump	£26.04
Citizen Swift 24 Sprite Dump	£26.04
Epson 24 Sprite Dump	£26.04
HP Paintjet Sprite Dump	£26.04
Integrex 132 Sprite Dump	£26.04
Integrex Colourcel Sprite Dump	£26.04
Juki 5520 Sprite Dump	£26.04
Star LC10 Sprite Dump	£26.04
Star XB24 Sprite Dump	£26.04
Star LC200 Sprite Dump	£26.04
Star LC24-200 Sprite Dump	£26.04

Ace Computing

Printer JX	£13.00
Printer PJ	£13.00
Printer CA	£13.00

Electronic Font Foundry

BubbleJet - BJ10e/130e	£10.00

Cables

Arc - Monitor - 8833 inc sound	£8.65
Arc - Monitor - 8833 II inc sound	£8.65
Arc - Parallel Printer Cable	£5.00
Keyboard Extender 400/500	£7.50
Mouse Extender	£7.50
Replacement Mk I Mouse Cable	£6.50

BBC Software

Blob 1	£18.00
Blob 2	£18.00
Bonecruncher	£9.95
Chick Chase (80 Track Only)	£15.00
Codename Droid	£9.95
Dunjunz	£9.95
E-Type	£13.00
Galaforce	£9.95
Icarus	£9.95
Imogen	£9.95
Kourtyard	£9.95
Master Break	£10.39
Mini Office II	£17.35
Modem Master	£11.26
Play it Again Sam No's 1 - 15	£11.95
Ravenskull	£9.95
Reversals (80 Track Only)	£20.00
Spellbinder	£9.95
Spy Vs Spy	£9.95
Strykers Run	£10.00
Thrust	£9.95
UIM	£14.95
Village of lost souls	£9.95
Where's Blob	£18.00
White Knight	£18.00
White Magic	£11.26
XOR	£10.00

Master Compact

Play It Again Sam No's 1 - 15	£13.00
UIM	£14.95
ViewPlot	£29.95
ViewSheet	£40.00
ViewStore	£45.00

Concept Keyboard

A4 Standard BBC Pack	£127.50
A3 Standard BBC Pack	£156.50
A4 Primary BBC Pack	£141.00
A3 Primary BBC Pack	£170.00
A4 Concept Kids BBC Pack	£143.50
A3 Concept Kids BBC Pack	£173.00
A4 Secondary BBC Pack	£141.00
A3 Secondary BBC Pack	£170.00
A4 Arc/A3000 Primary Pack	£142.00
A3 Arc/A3000 Primary Pack	£171.50
Conform Keyboard Software *	£15.00

* Produces overlays which once created will work with other Archimedes Desktop Applications

Scanners

Flatbed A4 256 Grey SCSI (CC)	£849.00
Scan Junior Scanner A6	£169.00
Scan Junior 256 Grey Level	£199.00
Scanlight Senior Scanner A4	£329.00
Sheet Feeder for above A4	£105.00

Archimedes Software

4 Mation

Chameleon	£25.00
Craftshop 1	£29.00
Craftshop 2	£29.00
Jiglet	£29.00
Jigsaw	£29.00
Poster	£75.00
SmArt	£55.00
SmArtFiler	£35.00
Snippet	£29.00

Ace Computing

ArcLight	£43.00
Euclid	£40.00
Mogul	£17.00
Splice	£26.00
Tween	£26.00

Acorn Computers

1st Word Plus	£65.00
ANSI C (V 3)	£125.00
Acorn Desktop Publisher	£109.00
Desktop Assembler (V 2)	£119.00
Desktop C (V 4)	£185.00
Font Starter Pack	£39.00
Fortran 77	£99.00
ISO Pascal	£99.00
Newhall Font Pack	£39.00
PC Emulator / Free Shareware	£99.00
Symbol Font Pack	£39.00
TCP/IP Programers Pack	£50.00
TCP/IP Protocol Suite	£199.00
Twin	£25.00

Arxe Systems

MultiFS	£27.00

Beebug

Hearsay	£59.00
Ovation	£79.00

Brilliant Computing

Everyday Signs	£20.00
Joystick Games	£20.00
Streetwise	£20.00
Switch On	£20.00
Switch On Actions	£20.00
Teds Adventures	£20.00

Cambridge International Sotware

Fireball II	£10.00
Mah-Jong Patience	£15.00
Mental Maths	£15.00
Microdrive	£14.00

Clares Micro Supplies

Artisan 2	£45.00
Illusionist	£79.00
Interdictor	£10.00
Interdictor II	£25.00
ProArtisan	£70.00
Render Bender 2	£99.00
Rhapsody 2	£45.00
Schema	£90.00

Colton Software

Pipedream 3	£105.00
Pipedream 4	£179.00

Computer Concepts

AvanteGarde Font Pack	£24.00
Bookman Font Pack	£24.00
Compression	£39.00
Equasor	£39.00
Impression II Borders Disc	£12.00
Impression Business Suppliment	£39.00
Impression II Free Drawfile Disc	£125.00
Impression Junior	£70.00
Inter-Sheet	£29.00
Inter-Word	£29.00
Show Page	£99.00

Cygnus Software

Iron Lord	£14.00
Tower of Babel	£14.00
Twin World	£14.00

Dabs Press

Arc DFS	£22.00

Database Software

Fun School 2 6-8 year olds	£14.95

Fun School 2 over 8s	£14.95
Fun School 2 under 6s	£14.95
Fun School 3 under 5s	£19.95
Fun School 3 5-7 year olds	£19.95
Domark	
Mig29 Fulcrum	£24.00
Mig29 Super Fulcrum	£32.00
Trivial Pursuit	£12.00

TRIVIAL PURSUIT

£12.00

while stocks last

Empire	
Pipemania	£16.00
Electromusic Reasearch	
Creations Discs 1-8	£19.00
MIDI Analyser	£29.00
Microstudio	£78.00
Music Player	£35.00
RhythmBox	£29.00
SoundSynth	£39.00
StoryBook	£49.00
Studio 24 Plus	£139.00
ESM	
Desktop Folio	£79.00
Hybrid	
Elite	£32.99
Icon Technology	
EasiWriter	£115.00
Krisalis Software	
Chuck Rock	£19.00
Lemmings	£20.00
Mad Professor Mariarti	£14.00
Manchester United Europe	£19.00
World Champ. Boxing Manager	£19.00
World Championship Squash	£18.00
Le Computer	
Config Aid	£26.00
SpeedWriter	£35.00
Lingenuity	
HotLink Presenter	£34.00
Presenter Story	£129.00
Presenter II	£29.00
Longman Logotron	
ArcComm 2	£54.00
Landmarks No's 1 - 4	£19.00
Magpie	£54.00
Notate	£55.00
Numerator	£60.00
Pendown	£54.00
Pendown Outline Fonts	£18.00
Pinpoint	£69.00
Revelation 2	£99.00
MicroPower	
Chess 3D	£14.00
Zelanites	£17.35
Midnight Graphics	
ClipArt 1 over 480 images	£29.95
ClipArt 2 over 350 images	£29.95

Improve your documents in leaps and bounds by using Midnight Graphics Drawfile Clip Art.

Send a 24p stamp for FREE sample disc

Tracer	£52.13

Minerva Software	
Serious	
Ancestry	£59.00
Atelier	£69.00
Desktop Office	£79.00
Easiword	£19.00
Flexifile	£89.00
Graphbox	£60.00
Graphbox Professional	£109.00
Home Accounts	£35.00
Multistore II	£179.00
PCAccess	£19.00
PrimeArt	£69.00
Timetabler	£599.00
Games	
Battletank	£13.00
Bughunter in Space	£13.00
Bug Hunter / Moon Dash	£13.00
Casino	£13.00
Caverns	£13.00
Family Favorites	£13.00
Freddy's Folly	£13.00
Hoverbod	£13.00
Ibix the Viking	£13.00
Jet Fighter	£13.00
Maddingly Hall	£13.00
Orion	£13.00
Redshift	£13.00
Talisman	£13.00
Thundermonk	£13.00
Northwest SEMERC *	
My World	£15.00
Phases - Borders disc	£7.50
Phases - Christmas disc	£7.50
Phases - Clip Art 1	£7.50
Phases - Very Hungry Caterpillar	£7.50
Phases 2	£15.00
Simple Stuff Maths	£7.50
Simple Stuff Sampler	£7.50
Simple Stuff Skeletons	£7.50

* Please add £2.50 P&P to SEMERC Software

Oak Solutions	
Archimedes BASIC Compiler	£79.00
Carousel	£34.00
Disc Sharer	£119.00
GenIndex	£25.00
Genesis	£40.00
Genesis Plus	£69.00
Genesis II	£99.00
Oak Recorder	£29.00
Parametric Design Tool	£359.00
Printer Spooler	£65.00
Remote Logon	£34.00
Worra Battle	£14.00
Worra Plotter	£24.00
WorraCAD	£74.00
Sherston Software	
!Draw Help	£15.00
!Help	£7.95
Animated Alphabet	£19.00
Arcventure	£25.00
Christmas Allsorts (Drawfiles)	£16.00
Dreamtime	£20.00
Farm	£19.00
Fleet Street Phantom	£23.00
Mapventure	£23.00
Microbugs	£25.00
Nature Park Adventure	£24.50
Selladore Tales	£24.00
Space Mission Mada	£23.00
Stig of the Dump	£22.00
Teachers Cupboard	£24.50
Teddy Bears Picnic	£23.00
Viewpoints	£35.00
Wizards Revenge	£17.00
Worst Witch	£21.50
Silicon Vision Ltd	
ARC-PCB	£149.00
ARC-PCB Professional	£299.00
Data Vision	£119.00
FILM-Maker	£70.00
Financial Accountant	£199.00
Gate-Array Design System	£119.00

GerberPlot	£89.00
Realtime Solids Modeller	£149.00
RiscBASIC	£119.00
RiscFORTH	£119.00
RoboLOGO	£70.00
ShareHolder	£149.00
SolidCAD	£119.00
SolidTOOLS	£299.00
SolidsRENDER	£119.00
SuperDump	£25.00
SuperPlot	£29.00
Superior Software	
Air Supremacy	£14.00
Conqueror	£15.00
Hostages	£14.00
Master Break	£14.00
Repton 3	£14.00
Speech!	£14.00
Superior Golf	£14.00
Zarch	£14.00
The Data Store	
FontFX	£9.95
ShapeFX	£9.95
The Electronic Font Foundry	
BubbleJet Printer Driver	£10.00
The Fourth Dimension	
Apocalypse	£14.00
Arcade Soccer	£14.00
Arcticulate	£14.00
Arctist	£14.00
Boogie Buggy	£14.00
Break 147 / Superpool	£18.00
Chocks Away 2	£15.00
Chocks Away Extra Missions	£14.00
Chocks Away 2 + Ext. Missions	£27.00
Drop Ship	£13.00
E-Type	£13.00
E-Type Designer	£13.00
E-Type Extra 100 miles	£13.00
Enter The Realm	£18.00
Holed Out	£13.00
Holed Out - Designer	£13.00
Holed Out - Extra Courses Vol 1	£13.00
Holed Out - Extra Courses Vol 2	£13.00
Inertia	£14.00
Man at Arms	£14.00
Nevryon	£14.00
Pandora's Box	£18.00
Powerband	£14.00
Pysanki	£14.00
Quazer	£9.00
Saloon Cars	£18.00
The Olympics	£14.00
The Real McCoy 1	£20.00
The Real McCoy 2	£20.00
The Wimp Game	£14.00
U.I.M	£18.00
White Magic	£14.00
White Magic 2 inc Designer	£14.00
The Serial Port	
ARCterm 7	£69.00
Blowpipe	£15.00
Investigator II	£22.00
Joystick Interface	£23.00
Tracker	£37.00
WorldScape	£15.00
Triple R Education	
Converta-Key	£14.00
Data Word	£14.00
Money Matters	£14.00
Picture Book	£14.00
Target Maths	£14.00

Euclid 2

3D Graphics

Animation Package

£40.00

while stocks last

Books (No VAT)

C: A Dabhand Guide	£14.95
Archimedes Assembly Language	£14.95
Archimedes Operating System	£14.95

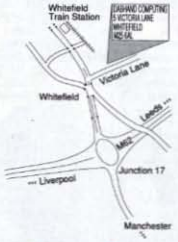
The above books have accompanying discs add £5 for 5.25", £7 for 3.5"

A3000 Technical Guide	£29.95
Acorn DTP Advanced U.G.	£14.95
!Help - Sherston	£7.95
BASIC V: A Dabhand Guide	£9.95
BBC Basic Guide (Acorn)	£19.95
DTP Seeds (4Mation)	£8.45
M128 Ref. Man.Pts 1&2 (ea.)	£14.95
RISCOS PRM's	£79.00
First Word Plus V2	£10.00
Acorn DTP	£10.00
ANSI C Version 3	£17.00
Assembler Release 2	£25.00
Desktop C Release 4	£25.00
Desktop Development UG	£25.00

Hours of Opening

Monday - Friday 9.00 a.m. - 5.00 p.m.
Saturday 10.00 a.m. - 5.00 p.m.
Lunch 1.00 p.m. - 1.30 p.m.

How to find us



Important Facts

- **NO Minimum Order Value**
- **NO Carriage Charges in Mainland UK**
- **ALL Goods Despatched within 24 Hours, subject to stock levels**
- **Acorn Qualified Dealer**
- **Acorn Service Centre**
- **Hotline Support on all Hardware and Software purchased from us**

Terms & Conditions

TERMS: UK residents add 17.5% VAT to all prices, except books. Delivery FREE on all postal items in the UK. Foreign orders, no VAT, carriage at cost. (quotations available). Access/Visa cards accepted. Dabhand Computing Ltd. is a Qualified Acorn dealer. Official orders accepted from public sector/education/PLCs, otherwise cash with order. Tender invitations welcome. Callers welcome. We are 800 yds north of J17, M62. Prices subject to change without notification. Goods offered subject to being unsold.

DABHAND
COMPUTING

DABHAND COMPUTING LTD
5 Victoria Lane
Whitefield
Manchester, M25 6AL

ICS

FREE DELIVERY IN MAINLAND UK

24-HOUR CREDIT CARD ORDERING

FRIENDLY ADVICE

DECEMBER 1991

1st Word Plus	Acorn	£62
– extra manual	Acorn	V0 £10
A3000 Technical Manual	Acorn	V0 £28
A540 Technical Guide	Acorn	V0 £65
ABC Basic Compiler	Oak	£77
– ABX Utils		£39
Adventure Playground, age 5+	Storm	£16
Air Supremacy	Superior	£20
Alerion	Dabs	£13
Alien Invasion	Dabs	£13
All-In Boxing	Dabs	£13
Alpha-Base	Clares	£34
ALPS Adventure Language Programming System	Alpine	£28
Amazing Ollie, age 4+	Storm	£13
Ancestry	Minerva	£59
ANSI C Release 3	Acorn	£102
– extra manual	Acorn	V0 £19
Apocalypse	Fourth dim	£20
Arcade 3 Compilation	Clares	£12
Arcade Soccer	Fourth Dim	£14
ArcComm 2	Longman	£38
ArcDFS	Dabs	£22
Arcendium	Dabs	£13
Archimedes Assembly Language	Dabs	V0 £15
– with disc		£22
Archimedes First Steps	Dabs	V0 £10
Archway 2	Simtron	£78
ArcLight	Ace	£40
ArcMonitor	CIS	£24
Arcounts Manager	Visionscan	£295
ARC-PCB	Silicon	£138
– Professional	Silicon	£269
– Schematics	Silicon	£475
Arcterm 7	Serial Port	£62
ARCticulate	Fourth Dim	£17
ARCtist	Fourth Dim	£17
ArcTrivia	Moray	£21
Armadeus	Clares	£59
Artisan II	Clares	£43
ArtWorks	CC	£POA
Astro	Topologika	£18
Atelier	Minerva	£63
Autosketch CAD	Autodesk	£65
Avon	Topologika	£16
Ballarena	Eterna	£14
Bambuzle	Arxe	£19
BASIC V Guide	Dabs	V0 £10
BBC Basic Guide	Acorn	V0 £19
Blaston	Eterna	£14
Blitz	Arxe	£21
BlowPipe	Eclipse	£14
Boogie Buggy	Fourth Dim	£17
Break 147 & Superpool	Fourth Dim	£17
Broadcast Loader	Acorn	£63
Bubble Fair	Eterna	£14
Bug Hunter / MoonDash	Minerva	£13
Bug Hunter in Space	Minerva	£13
Business Accounts	Minerva	£298
Cambridge Pascal	Dabhand	£60
Cartoon Collection	Micro Studio	£16
Cartoon Line	Eterna	£21
Cataclysm	Fourth Dim	£19
Caverns	Arcana	£13
C: A Dabhand Guide	Dabs	V0 £14
– with disc		£22
C Development System	Beebug	£77
Chameleon	4mation	£24
Charts & Graphs	Computer Tutorial	£17
Chequered Flag	CIS	£18
Chess 3D	Micro Power	£14
Children's Graphics	Micro Studio	£16
Chocks Away	Fourth Dim	£17
– Compendium	Fourth Dim	£27
– Extra Missions	Fourth Dim	£14
Chopper Force	Fourth Dim	£POA
Christmas Theme Pack	ESM	£34
Chuck Rock	Krisalis	£19
Clip Art	Graphics Factory	
– Vol 1 (General), sprites		£19
– Vol 2 (General) / Vol 3 (Animals) / Vol 4 (Sport) / Vol 5 (Characters)		each £25
Clip Art Set 1, drawfiles	Midnight	£26
Clip Art Set 2, drawfiles	Midnight	£29
Coffee, age 9+	Storm	£27
Colour Screen-Mac	Human	£90
– Arc/Mac Cable	Human	£24
Compression	CC	£39
Concept Designer	Longman	£22
Conqueror	Superior	£17
Control Panel	Lingenuity	£14
Converta-Key	Triple R	£16
Cops	Alpine	£15
Corruption	Magnetic	£18
Craftshop 1	4mation	£27
Craftshop 2	4mation	£27
Creator	Alpine	£31
Crisis	CIS	£15
Cross-32 Meta-Assembler	Baildon	£175
– manual for evaluation	Baildon	V0 £15
DataVision	Silicon	£110
DataWord	Triple R	£14
Decorated Alphabet, sprites	Micro Studio	£17
Designer V.3	TechSoft	£193
Designer Intro	TechSoft	£75
Designer's Graphics, drawfiles/sprites	Micro Studio	£16
Desktop Assembler Release 2	Acorn	£119
Desktop C Release 4	Acorn	£185
Desktop Folio	ESM	£79
Desktop Office	Minerva	£76
Desktop Publisher	Acorn	£108
– extra manual	Acorn	V0 £10
DFS Reader	Beebug	£9
Disc Mechanic	CIS	£17
Disc Tree	Mitre	£37
DrawBender	ICS	£15
– site licence		£50
Dread Dragon Droom	Resource	£21
Dreamwave	EMR	£34
Drop Ship	Fourth Dim	£14
DTP Graphics 1 Mono, sprites	Micro Studio	£15
DTP Graphics 2 Colour	Micro Studio	£17
DTP Graphics combined	Micro Studio	£25
DTP Seeds	4mation	V0 £8
Easiword	Minerva	£18
EasiWriter	Icon	£120
– Dictionaries: Danish / French / German / Italian / Norwegian / Spanish / Swedish / Welsh		each £30
Einstein	Ace	£POA
Elite	Hybrid	£33
EluciData (OCR)	Irlam	£155
– bought with Irlam Scanner		£79
Enter the Realm	Fourth Dim	£19
Equasor	CC	£39
E-Type Compendium	Fourth Dim	£19
Euclid	Ace	£50
Exotic Adventures of Sylvia Lain	Fourth Dim	£19
Face Off Ice Hockey	Krisalis	£22
Family Favourites	Minerva	£14
Farmer Giles	Computer Tutorial	£16
Farmer Giles II	Computer Tutorial	£16
Film-Maker	Silicon	£70
Financial Accountant	Silicon	£203
Finding the Way, age -5	Rainbow	£7
Fine Racer	Eterna	£14
Fireball Xtra	CIS	£12
First Impression	Word Processing	V0 £28
First Words and Pictures	Chalksoft	£19
Flexifile	Minerva	£89
Flight Path, age 9+	Storm	£27
Flying Start II	Mitre	£86
Fontasy	ICS	£25
– Site Licence including DrawBender and Placard		£80
FontFX	Data Store	£9
– site licence		£70
Font Pack – Newhall, Starter, Symbol – each pack	Acorn	£35
Font Pack 1 – Paladin, Swiss B, Symbol B, Vogue	Beebug	£47
Font Pack – Avant Garde, Bookman Pembroke – each pack	CC	£20
Fortran 77 Release 2	Acorn	£75
Fourier Analysis	Armadillo	£60
Freddy's Folly	Minerva	£13
Freddy Teddy	Topologika	£18
Freddy Teddy's Adventure	Topologika	£16
Fun School 2, age -6	Database	£15
Fun School 2, age 6-8	Database	£15
Fun School 2, age 8+	Database	£15
Fun School 3, age -5	Database	£18
Fun School 3, age 5-7	Database	£18
Fun School 3, age 8+	Database	£18
Gammaplot	Minerva	£35
Gate Array Design / Teaching	Silicon	£114
Genesis I	Oak	£40
Genesis II	Oak	£99
Genesis Plus	Oak	£69
Genesis Script Language	Oak	V0 £16
GerberPlot	Silicon	£89
Giant Killer, age 10+	Topologika	£16
Giant Killer Support Disc	Topologika	£14
GraphBox	Minerva	£55
GraphBox Professional	Minerva	£109
Graphic Writer	Clares	£24
Greetings Graphics, drawfiles/sprites	Micro Studio	£16
Grievous Bodily 'ARM	Fourth Dim	£19
Gumshoes	Fourth Dim	£18
Hard Disc Companion	Beebug	£33
Hard Disc Companion release 2	Beebug	£44
Hearsay	Beebug	£50
Herewith the Clues!		£20
History Costume, sprites	Micro Studio	£16
Holed Out	Fourth Dim	£12
Holed Out Compendium	Fourth Dim	£18
Home Accounts	Minerva	£34
Hostages	Superior	£14
Hotlink Presenter	Lingenuity	£40
House of Numbers	Chalksoft	£19
Hoverbod	Minerva	£13
Hyperbook Reader	Longman	£47
Hyperbook Electronic Library (including Reader)	Longman	£109
Ibix the Viking	Minerva	£14
I^{2}C SWI	Baildon	£15
– bought with Oddule		£5
Illusionist	Clares	£76
Illustrators' Graphics, drawfiles/sprites	Micro Studio	£16
Image Animator	Iota	£68
Image OCR	Iota	£POA
Image Outliner	Iota	£78
Impression 2.14 or latest	CC	£125
– network version		£650
– site licence		£545
– extra hardware key for sites only		£15
– extra manual for sites only		V0 £8
Impression Borders	CC	£12
Impression Business Supplement	CC	£39
Impression Junior	CC	£69
– site licence		£435
– extra manual for sites only		V0 £7
Inertia	Fourth Dim	£14
Instigator	Dabs	£39
Interdictor 2	Clares	£25
Investigator 2	Serial Port	£22
IronLord	UBI Soft	£14
ISO Pascal Release 2	Acorn	£75
Jahangir Khan World Championship Squash	Krisalis	£17
Jet Fighter	Minerva	£10
Jiglet	4mation	£25
Jigsaw	4mation	£27
Junior Database	Iota	£51
Kerbang	Eterna	£12
Keyboard Player	Chalksoft	£17
Knowledge Organiser	Clares	£42
Landmarks, Egypt / Rain Forest / Second World War / Victorians	Longman	£17
Last Days of Doom	Topologika	£16
Lemmings	Krisalis	£19
Letters and Pictures	Chalksoft	£17
Level 4 Fileserver	Acorn	£160
LISP	Acorn	£145
Little Red Riding Hood, age 5-8	Selective	£14
Logistix	Acorn	£77
Logo	Longman	£55
Maddingly Hall	Minerva	£12
Mad Professor Mariarti	Krisalis	£15
Magpie	Longman	£39
Mah-jong Patience	CIS	£15
Mailshot	Minerva	£27
Man at Arms	Fourth Dim	£14
Manchester United Europe	Krisalis	£19
Manchester United Football Club	Krisalis	£19
Maps and Landscapes 1	Chalksoft	£19
Maps and Landscapes 2	Chalksoft	£19
Mark Master	Chalksoft	£67
Master Break	Superior	£14
Masterfile II	Beebug	£19
Mazes, drawfiles	Micro Studio	£16
Memory Magic	CIS	£14
Mental Maths	CIS	£15
MicroDrive Golf	CIS	£14
– Compendium	CIS	£24
Micro Trader Accounts	PRES	£199
MIG-29 Fulcrum	Domark	£28
MIG-29 Super Fulcrum	Domark	£32
Military History, sprites	Micro Studio	£16
Minotaur	Minerva	£13
Missile Control	Minerva	£13
Mogul	Ace	£15
Money Matters	Triple R	£15
Movaword	Chalksoft	£17
MultiFS	Arxe	£27
Multistore version II	Minerva	£179
Nature Graphics, drawfiles/sprites	Micro Studio	£16
Nevryon	Fourth Dim	£14
No Excuses	Arcana	£17
Nominal Ledger	Minerva	£78
Note Invaders	Chalksoft	£17
Numbers and Pictures	Chalksoft	£17
Numerator	Longman	£60
Numerator Chaos	Longman	£18
Oak Recorder	Oak	£28
Office Tools	Silicon	£276
Ollie Octopus' Sketchpad	Storm	£13
Olympics	Fourth Dim	£14
Order Processing/Invoicing	Minerva	£78
Orion	Minerva	£13
Orrery	Spacetech	£93
Ovation	Beebug	£85
Overload	Clares	£13
Pacmania		£17
Padlock	ICS	£10
– site licence		£30
Pandora's Box	Fourth Dim	£19
Parametric Design Tool	Oak	£350
PC Access	Minerva	£19
PC Emulator 1.7	Acorn	£85
Pendown	Longman	£47
– Extra Outline Fonts	Longman	£16
Personal Accounts	Apricote	£24
Picture Book	Triple R	£14
PinPoint	Longman	£75
PipeDream 3	Colton	£105
PipeDream 4	Colton	£179
PipeDriver Dot 1	ICS	£10
Pipe Mania	Empire	£18
PIPP2 Professional Integrated Project Planner	CIS	£POA
Pirate, age 8-14	Chalksoft	£16
Placard	ICS	£10
– site licence		£30
Plague Planet	Alpine	£13
Poizone	Eterna	£14
Poster	4mation	£75
Powerband	Fourth Dim	£17
Prehistoric Animals, sprites	Micro Studio	£16
Premier	Circle	£71
– DataBase	Circle	£25
– WordProc	Circle	£25
Presentation System	Silicon	£61
Presenter GTi	Lingenuity	£62
Presenter II	Lingenuity	£29
Presenter Story	Lingenuity	£129
PrimeArt	Minerva	£69
Printer Driver, RISC OS – Epson, Star colour	Beebug	£15
Printer Driver, RISC OS – JX (Epson, Star and Citizen colour)	Ace	£13
Printer Driver, RISC OS – PJ (HP Paintjet Colour)	Ace	£13
Pro Artisan	Clares	£70
Protext	Arnor	£114
Provocator	Computer Tutorial	£15
Puncman 1 and 2	Chalksoft	£16
Puncman 3 and 4	Chalksoft	£16
Puncman 5 to 7	Chalksoft	£17
Purchase Ledger	Minerva	£78
Pysanki	Fourth Dim	£15
Quazer	Fourth Dim	£9
QuicKey	ICS	£15
– site licence		£45
Realtime Solids Modeller	Silicon	£132
Real McCoy	Fourth Dim	£20
Real McCoy 2	Fourth Dim	£18
Redshift	Minerva	£14
Render Bender I	Clares	£55
Render Bender II	Clares	£99
Reporter	Minerva	£29
Repton 3	Superior	£14
Revelation	Longman	£58
Revelation 2	Longman	£109
Reversals	Chalksoft	£17
Rhapsody 2	Clares	£45
RiscBASIC	Silicon	£112
RiscForth Compiler	Silicon	£110
Risc OS Companion Vol 1	Oak	V0 £49
Risc OS Programmer's Reference Manual	Acorn	V0 £79
Risc OS Style Guide	Acorn	V0 £11
RiscType V2	CIS	£16
RoboLogo	Silicon	£69
Rockfall	Eterna	£16
Rotor	Arcana	£19
Sales Ledger	Minerva	£78
Saloon Cars	Fourth Dim	£18
Schema	Clares	£89
School Administrator	Minerva	£65
Science, drawfiles	Micro Studio	£25
Scorewriter PMS Dot matrix	EMR	£127
Scorewriter PMS PostScript	EMR	£425
Seashore Guide, drawfiles	Micro Studio	£16
Sesame Street, Letters for You	Electric Crayon	£16
Sesame Street, Numbers Count	Electric Crayon	£16
ShapeFX	Data Store	£10
ShareHolder	Silicon	£139
ShowPage	CC	£130
Shylock Gnomes, age 10-15	Selective	£16
Sigma Sheet	Minerva	£38
smArt	4mation	£54
smArt Dinosaurs / Faces / Fashion / Heraldry / Homes / Leisure / Trees and Gardens – each	4mation	£16
smArtFiler	4mation	£34
Snippet	4mation	£26
SolidCAD	Silicon	£115
SolidsRender	Silicon	£115
SolidTools	Silicon	£269
Spark	David Pilling	£5
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speech!	Superior	£14
Spelling week-by-week	Chalksoft	£19
Spitfire Fury	Fourth Dim	£POA
Splice	Ace	£22
Sporting Triangles	CDS	£20
Square Route	Computer Eyes	£16
Step by Step Guides (videos): 1 Up & Running, 2 Text Processing, 3 Data Handling, 4 Art & Graphics – each	Pedigree	£12
Stock Management	Minerva	£78
Studio 24 Plus	EMR	£139
Super-Dump	Silicon	£20
Superior Golf	Superior	£14
Super-Plot	Silicon	£28
Supersound Creations	CIS	£15
System Delta Plus II	Minerva	£50
– Reference Guide	Minerva	V0 £25
Tactic	Eterna	£15
Talisman	Minerva	£12
Target Maths	Triple R	£14
TechWriter	Icon	£245
Telling the Time, age 3-12	Rainbow	£7
Thundermonk	Minerva	£12
Timetabler	Minerva	£549
Timewatch	Mitre	£24
Tiny Logo + Tiny Draw	Topologika	£27
Toolkit Plus	Clares	£35
Tools Graphics, drawfiles	Micro Studio	£23
Touch Type	Iota	£40
Tower of Babel	Cygnus	£18
Tracer	Midnight	£46
Tracker	Serial Port	£37
Transport, drawfiles	Micro Studio	£25
Trivial Pursuit	Domark	£22
Turbo Type	CIS	£20
Tween	Ace	£20
Twin	Acorn	£24
Twin World	UBI Soft	£14
TWO (Task and Window Organiser)	ICS	£19
– site licence		£60

Typing Tutor	*CIS*	£17
U.I.M	*Fourth Dim*	£23
Utility Disc 1	*Data Store*	£13
Utility Disc 2	*Data Store*	£13
Utility Disc 3	*Data Store*	£7
Utility Collection	*Data Store*	£21
View-Mac 3	*Human*	£65
– Arc/Mac Cable	*Human*	£24
Vox Box	*Clares*	£47
White Magic	*Fourth Dim*	£14
White Magic 2 + Designer	*Fourth Dim*	£14
Wimp Game	*Fourth Dim*	£12
Wonderland	*Virgin*	£24
Words and Pictures	*Chalksoft*	£17
World Championship Boxing Manager	*Krisalis*	£20
World Geography Maps, draw	*Micro Studio*	£23
WorldScape	*Eclipse*	£15
World Wildlife, sprites	*Micro Studio*	£16
Worra Battle	*Oak*	£13
WorraCAD	*Oak*	£75
Worra Plot	*Oak*	£24
X-Fire	*Fourth Dim*	£19
Z88: A Dabhand Guide	*Dabs*	V0 £15
Z88 PipeDream Guide	*Dabs*	V0 £15
Zarch	*Superior*	£14
Zelanites	*Micro Power*	£14

HARDWARE

A5000 COMPUTERS & UPGRADES

2Mb Hard Disc Colour System	*Acorn*	£1499
– as above + Learning Curve		£1530

(Finance & special purchase schemes available)

A5000 4 Mb Upgradable †	*Atomwide*	£109

PRINTERS

ArcLaser	*Calligraph*	£895
ArcServer	*Calligraph*	£985
Bubble Jet BJ-10e	*Canon*	£205
Bubble Jet BJ-300	*Canon*	£360
Bubble Jet BJ-330	*Canon*	£405
Laser Direct HiRes4 with 50-sheet tray	*CC*	£895
– with optional 250-sheet cassette		£999
Laser Direct HiRes8	*CC*	£1280
Laser Direct LBP-4 Card	*CC*	£319
Laser Direct Qume	*CC*	£799
LBP-4	*Canon*	£659
Refill toner cartridge for Canon EPS		£50
New toner cartridge for Canon LBP-4		£59

FUNCTION KEY STRIP ORGANISER

Arckey	*ICS*	V0 £3
– set of 4		V0 £10

MEMORY, MISCELLANEOUS

Fitting extra unless stated
† Fitting easy ‡ Fitting needs expertise

A3000 2 Mb Non-upgradable †	*IFEL*	£55
A3000 2 Mb Upgradable †	*IFEL*	£63
A3000 4 Mb †	*Atomwide/IFEL*	£149
A310 2 Mb Upgradable soldered ‡	*IFEL*	£99
– as above + MEMC1a		£149
– as above + MEMC1a + fitting		£200
A310 4 Mb soldered + MEMC1a ‡	*IFEL*	£225
– as above + fitting		£277
– as above + fitting + OS3 carriers		£298
A540 4 Mb †	*Atomwide*	£270
ARM3 ‡	*Atomwide*	£249
Dongle Dangle with screw fittings	*ICS*	£6
4-slot 4-layer Backplane	*IFEL*	£59
A310 RISC OS Carrier Board ‡	*IFEL*	£25
A300/400 Fan kit	*ICS*	£15
Fan filters (set of 10)	*ICS*	£4
Whisper Fan Quietener	*ICS*	£15

MICE, MONITORS

Clares Micro Mouse	*Clares*	£26
9060S	*Eizo*	£450
9070S	*Eizo*	£640

SCANNERS, DIGITISERS

ArcScanner including Epson GT-4000	*Clares*	£1660
FaxScan	*Spacetech*	£94
FX9600AT + Maintenance	*Amstrad*	£376
Hawk V9	*Wild Vision*	£199
– A3000 version	*Wild Vision*	£278
Image (colour)	*Irlam*	£589
Image Scanner	*Iota*	£389
– Colour upgrade	*Iota*	£98
i-Scan 200	*Irlam*	£539
i-Scan 400	*Irlam*	£589
Scan-Light A4	*CC*	£346
– with Sheet Feeder	*CC*	£431
Scan-Light Junior	*CC*	£165
– A3000 internal	*CC*	£165
Scan-Light Junior 256	*CC*	£199
– A3000 internal	*CC*	£199
Scan-Light Professional	*CC*	£840
– as above + SCSI interface	*CC*	£940

I²C PRODUCTS

AnDi Oddule	*Baildon*	£49
I²C Adaptor (needed unless you already have an I²C socket)	*Baildon*	£10
I²C SWI (enhanced IIC_Control)	*Baildon*	£15
– bought with Oddule		£5

KEYBOARD COVERS

Seal 'n Type (spill-proof)

– Archimedes	*Kador*	£14
– A3000	*Kador*	£14

HIGH DENSITY 3½" FLOPPY DISCS

Pack of 10	£10

HOW TO ORDER

VAT: UK customers please add 17.5% to the total price, except for the zero-rated items marked V0. Our VAT number is 384 3312 56.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING. *Remember this when you compare prices!*

Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable in England, or Eurocheques for not more than £100 each.

Credit cards are welcome. We do not charge your account until your order has been fulfilled. The name and address for delivery of goods should be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due.

Official orders are welcome. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences: please enquire if no price is shown.

All products, prices and specifications are offered in good faith and are subject to change without notice. Your order will receive our attention immediately, but suppliers sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval.

Thinking IDE?

Look at these examples of our

NEW LOW PRICES

➤ A3000 INTERNAL 40 MB – ONLY £399 !

20 MB £225 · 60 MB £549 · 80 MB £675

All with power save, write protect, I²C connector, etc
Miniature fan option for fully upgraded A3000s

➤ A3000 EXTERNAL 40 MB – ONLY £369 !

With power supply and metal case to hold two hard discs

➤ A300/400/500 SERIES INTERNAL 80 MB – ONLY £359 !

Prices includes interface card and all fittings
We use 1 inch high discs so two can be fitted in the same place – e.g. add an extra 40 Mb for only £195

PLUS A FREE Compression WORTH £57 !

We offer a full range of internal and external hard disc upgrades and separates. Telephone for more details and friendly advice based on a year's experience in selling IDE products.

Ask about our special education offers, or visit us at the BETT show.

Think ICS

There's only one Original

ideA

AUTHORISED ACORN DEALER

Ian Copestake Software

Dept TMU17, 10 Frost drive, WIRRAL, Merseyside, L61 4XL

Tel: 051-632 1234 Fax: 051-632 3434

E&OE SO39 91NO28

LICENSED CREDIT BROKER

The Only Solution

The 4/8Mb memory upgrade for the new A5000 continues Atomwide's tradition of producing high quality products for the Acorn range of computers.

The 4Mb card offers a complement of 2Mb, bringing the A5000's total memory up to 4Mb. For those who require even greater processing power, the 4Mb card can be further upgraded to 8Mb, providing an ideal environment for professional applications.

Fitting the 4Mb upgrade is a simple task involving no soldering or expert knowledge. The 4 to 8Mb upgrade however, requires the A5000 to be sent to Atomwide for fitting. Courier collection & delivery of your machine is therefore included in the price.

4Mb RAM card - £110.00 (ex. VAT)

4 to 8Mb RAM - £399.00 (ex VAT)

ATOMWIDE

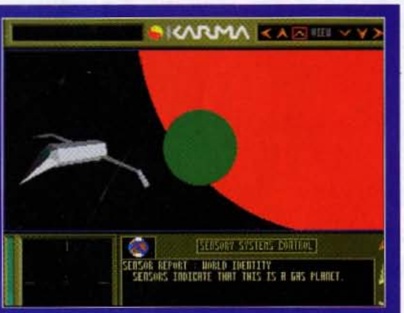
23 The Greenway Orpington Kent BR5 2AY Tel 0689 838852 Fax 0689 896088

NEWS BEAT

Karma before the storm

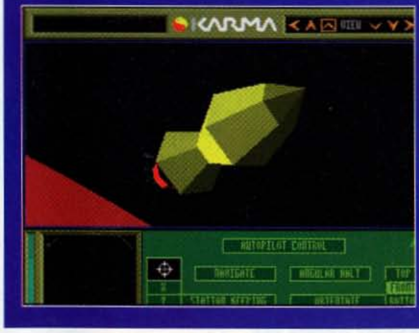
HAVE you got what it takes to navigate from planet to planet? Play Karma and you'll probably find out. Periscope Software (0462 893107) are releasing Karma – The Flight Trainer to train pilots ready for the release proper of Karma.

Pilots start with a Mothership, modestly equipped with ship systems for manual flight control, autopilot, a dynamic 3D galactic map, physical world sensors, rudimentary communications and a limited defence.



SENSOR REPORT : WORLD IDENTITY
SENSORS INDICATE THAT THIS IS A GAS PLANET.

You'll be expected to find artificial objects, interact with them via communications and receive instructions which will eventually lead to the discovery of the second ship available to the pilot – the hopper.



You then start your training, culminating in the discovery of a Galactic Council Training Post. At this station graduation can occur, and admission to the next release of Karma will be granted. Release Two is due mid '92 with Release Three due around Christmas.

The 3D, 64-bit model provides a Newtonian environment which offers the nearest experience, so far, to actually navigating in space. Real space is huge and the techniques required to fly successfully are very different to anything you may have encountered before.

The Flight Trainer allows you to gain these skills and become used to the surroundings, without the distracting complexity of lifeforms and their civilisations. If you buy The Flight Trainer for £25.99, there will be a special upgrade price for Release Two.

Oak trees

OAK Solutions have just announced a Printed Circuit Board designer costing £150, for use on the Risc OS desktop.

Complete with a comprehensive Toolbox, it provides many of !Draw's features as well as tools specific to use with PCBs. Pads of many styles can be created in a wide range of sizes and single and dual in line arrays of pads can be generated automatically.

Tracks of any thickness can be created. Track editing will be familiar to users of !Draw and the tracks remember which pads they are attached to. So if one component is moved on a board, its tracks follow automatically.

A text facility is available using outline fonts, and a technical font – HelvetiPlt – is provided too. Objects can be manipulated as in !Draw and drawfiles can be imported and scaled to any size. Multiple views and documents in memory are supported along with full data transfer facilities between documents.

Up to four copper layer circuit boards can be created with drilling and solder resus layers are generated automatically. Two comprehensive parts libraries are supplied as standard too: PCBLib and SchemLib. The former provides the PCB layout for virtually every type of electronic component. SchemLib provides schematic symbols to create neat and quick circuit diagrams.

Oak Solutions (0274 620423) have moved their head office to: Suite 25, Robin Enterprise Centre, Leeds Road, Idle, West Yorkshire BD10 9TE.

Remote sensing

LINDIS UK (098 685 476) have come up with a remote sensing application for the Archimedes, called Alexander.

Satellite images are becoming more and more important, finding their way into government, project planning, construction work, marketing, research and so on. Alexander costs £2,149 and makes the interpretation and manipulation of satellite images easy and quick.

You are guided through the multitasking environment by menus, giving you access to a wide range of image processing features such as averaging and degaussing for smoothing. While the ability to use laplace and median filters allows for image enhancement.

There is a wide range of classification and display options and output can be in the form of sprites, so that images can be used in other Archimedes applications.

SEIKOSHA SP-2400

Speedy Seikosha

THE new SP2400 A1 from Seikosha (0753 685873) is heralded as the fastest 9-pin printer available for under £200, with a print speed of 300 cps and a price of £199.

This is an entry level model aimed primarily at education, small to medium sized business and the home. Or indeed anywhere where speed is a priority. With Epson FX and IBM Proprinter II emulations the printer buffer can hold 21k of data. The paper handling is on par with more expensive models, providing push tractor, paper parking, and an optional single bin sheet feeder.

Please note that the address given for Sigma in the December issue of Micro User in connection with the book by Bruce Goatly – DTP on the Archimedes – was incorrect. Sigma live at 1 South Oak Lane, Wilmslow, Cheshire SK9 6AR.

The book's ISBN number is I 85058 248 3

SPECIAL CHRISTMAS OFFERS!

FREE GAMES with your subscription

RISC User

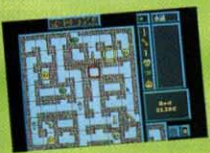
The most popular subscription magazine devoted solely to the Archimedes range of computers including the A3000

FREE! ARCHIMEDES GAMES DISC

- Solitaire
- Amaze
- Guessword 5
- Cavern

When you subscribe to RISC User

RISC User offers 10 magazines a year which typically contain:

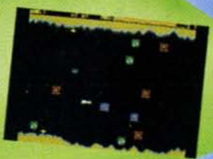


News on the world of Archimedes
Reviews of the latest products
Ready to run applications
Utilities, routines and advanced programming techniques
Programs and articles on sound and graphics
Series of articles for all spheres of interest:

- 'Into the Arc' — tutorial series for beginners
- 'Mastering the Wimp' — series on Wimp programming
- 'Under the Lid' — hardware series
- 'Assembler Workshop' — all about ARM Assembler
- 'Beginning 'C' — series on C language
- 'DTP/WP' — advice on using commercial software
- 'Arcade' — a round-up of the latest games

Hints and tips
Postbag for your letters and answers to your questions
Technical queries and expert answers

Magazine discs, containing all programs published in the magazine plus some additional items, are available to order or on subscription.



10 years of publication

BEEBUG

The only significant magazine still dedicated entirely to users of the BBC Model B and Master series.

FREE! GAMES DISC

- Chinese Chequers
- Twiddles
- Pitfall Pete
- Ebony Castle

When you subscribe to BEEBUG

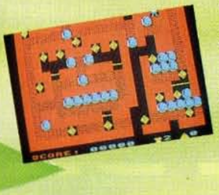
In April, BEEBUG commences its 10th year of publication, providing professional, useful and interesting information to thousands of subscribers.

Each magazine offers:

A variety of useful programs to type in, or run from disc:

- Stand-alone applications
- Handy utilities and useful routines
- Entertaining games

News from the BBC world
Reviews of new products, and comparative surveys



- 'Series covering a range of interests:
- 'First Course' series for beginners
- 'Workshop' for the more advanced programmer
- '512 Forum' for users of the Master 512
- 'Practical Assembler' for Assembly language programmers
- 'BEEBUG Education'

Informative articles
Hints and tips

Postbag for your letters and answers to your questions and lots more

All programs published in the magazine are available on disc, to order or on subscription.

With your subscription you will receive not only 10 magazines a year, but you will benefit from a professional organisation with 9 years of experience in software, hardware, computing publications and support.

- Showroom with friendly professional staff, where you can try out the latest software and hardware
- BEEBUG's own quality software and hardware, with special discounts for magazine subscribers
- A large range of other products, and a Retail catalogue mailed free to magazine subscribers
- Speedy mail-order service
- Workshop repairs by qualified staff
- Trade-in service to upgrade your equipment

RISC developments
117 Hatfield Road, St. Albans, Herts AL1 4JS
Telephone: 0727 40303 Fax: 0727 860263

I would like to subscribe to **RISC User Magazine** starting with the December issue, and receive in addition the *Archimedes Games Disc* Free ☐

I would like to subscribe to **BEEBUG Magazine,** starting with the December issue, and receive in addition the *BEEBUG Games Disc Free* ☐

RISC User/BEEBUG Subscription Rates (1 year): **£19.90** UK, BFPO, Ch.I, £29 Europe+Eire, £35 Middle East, £38 Americas+Africa, £41 Elsewhere **Joint Subscription RISC User and BEEBUG** (1 year): **£29** UK, BFPO, Ch.I, £43 Europe+Eire, £52 Middle East, £57 Americas+Africa, £61 Elsewhere. I enclose a cheque for £ ________ (all cheques must be in pounds sterling, drawn on a UK Bank) or, Please debit my Access/Visa account No.

☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

Card Expiry __________ Signature __________________

Name ______________________________

Address ____________________________

M1 ______________________ Post Code __________

Elite strikes gold

The cult 3D space game Elite looks set to repeat on the Archimedes the phenomenal success of its previous versions on the BBC Micro, Commodore 64, Spectrum, Amiga and PC. Launched by Hybrid after months of speculation and first reviewed in November's *The Micro User*, Archimedes Elite sold its first 1000 copies in just five days, breaking all previous records for initial game sales on the Arc. Its first production run, intended to cover the Christmas period, was entirely consumed by the end of November.

Faced with a further production run to meet Christmas demand, Hybrid taken the opportunity to upgrade the package. The new Elite Gold Edition, launched at the the Computer Shopper Show, leaves the program itself largely unchanged, but adds a wealth of support materials.

As well as separate Flight Training guide and User Manual, new items include a traders record pad (invaluable for keeping track of goods prices and profits) and a set of glossy full-colour Ship DataCards, each picturing and describing one of the 24 major vessel types found in the Elite universe. Also included is an improved control key guide and a reprint of the original Elite wall poster. Created by famous fantasy artist Philip Castle for the BBC version, this was never included in the original Elite pack nor, due to licensing restrictions, subsequent versions until now.

Owners of the original Elite pack get the Gold Edition extras upon returning their original control key guide to Hybrid. Those who bought their package other than direct from Hybrid should include a £3 cheque for handling charge.

Finders keepers

MAD Rabbit Systems are launching Questor Host for the Archimedes range. A Prestel-standard Viewdata Bulletin Board host, it allows you to access your own database via a modem and telephone line.

Priced at £40 Questor Host can be customised to your own needs but it is easy to modify the system yourself. It's not available till February but you can write to Mad Rabbit at 22 Oakwood Grove, Horbury, Wakefield, West Yorkshire WF4 5JE.

Some of the promised features are: The ability to store any number of Viewdata frames plus a small scrolling environment for down and uploading your system; a full wimp-driven editor and status information; a messaging system; support for up to 19200 baud plus a powerful but easy to use professional file transfer system.

This is a group of Aborigines from Western Australia - circa 1900.

Display in mode 15.

Clipping away

DAVE Cornforth has started a new company called Dec_Data (0392 221702). Its aim is to supply all areas of the Archimedes market with clip art.

The disc based catalogue is extremely impressive, as it not only keeps a check of the clip art, images or datafiles you've ordered, but also prints out a calculated order form.

The images on offer are very diverse covering aircraft to constellations, and themes such as Australia and early inventions.

Singing on the wires

A NEW bulletin board is available called Nightingale. It's online 24 hours a day on 0272 535962 using ArcBBS software written by Hugo Fiennes – hero of the SoundTracker module.

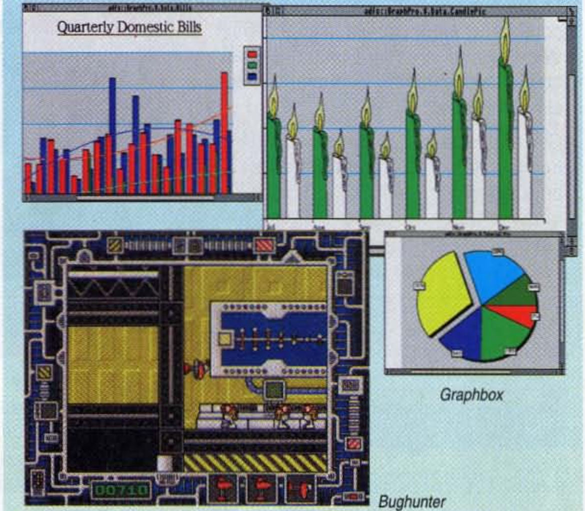
Using a 2Mb A3000, an Oak SCSI interface and 49 Mb hard drive contact with the world at large is via a Racal-Milgo Maxam IV modem. The system has been up and running since November.

Originally a medical board – hence the name – the professional area still exists. But you must prove your medical or nursing credentials before you're allowed access.

For non-medics there is a lot of information with PD and shareware programs available for PC and Archimedes users. While just opened are areas dealing with what's on in Bristol, Bath and South Yorkshire, as well as a section called Rainbow. This is run by one of the users for people with disabilities.

FREEBIES

Games and Graphs – over £500 of free entertainment and professional software for the Archimedes



Graphbox

Bughunter

MINERVA are well known for their quality programs in the business, education and entertainment spheres. Now, exclusive to readers of The Micro User are eight innovative and top quality products – free.

GraphBox Professional is their latest release. Retailing for £151.58 it's a data presentation package suitable for the most demanding of scientific and business applications.

Information can be quickly plotted from a wide variety of sources or modified by the built-in editing software. The huge array of graph types – over 40 – gives you a wide choice of presentation. Your charts and graphs are produced as draw files which can then be easily imported into DTP or CAD systems for integration into a presentation document.

An easy to follow manual with a useful tutorial, is combined with technical telephone support and Minerva offer a training program for educational and large organisations. Fully multi-tasking it is a very useful addition to any desktop. And there are three copies waiting to be given away.

BugHunter in Space is a classic and humorous arcade adventure. Tricky puzzles and a desire to save the world as we know it, drives the arch-insect swatter into greater and more complex puzzles. Set on an alien spacestation, the graphics, animation and scrolling are what you'd expect on the Archimedes. Usually priced at £17.95, there are five copies looking for good homes.

What to do

To obtain your copy of BugHunter in Space or Graph Box Professional, write to: *Micro User Freebie Offer, Minerva, Minerva House, Baring Crescent, Exeter EX1 1TL. Specify which program you'd prefer and one of these packages could be yours.*

The eight packages will go to the first eight readers pulled out of the sack after January 6 1992.

BEEBUG The Archimedes Specialists

A3000 Hard Drive DTP System

If you have been thinking of getting an A3000 there has never been a better time.

This special offer provides an excellent system ready for immediate use. The hard drive, RAM and Ovation are all installed ready so you can simply turn on and start.

Ovation is the highly acclaimed package combining word processing and DTP. Widely used in education it offers a whole host of features and is powerful and yet simple to use.

Our high speed IDE drive was designed especially for the A3000. It has an access time faster than ST506 or 8 bit SCSI, features auto-parking and sleep mode and is fitted in the internal expansion slot.

☐ Acorn A3000 Computer
☐ Genuine Acorn Colour Monitor
☐ Monitor Plinth
☐ 2 Mb RAM
☐ 20 Mbyte Internal Hard Drive
☐ Ovation DTP

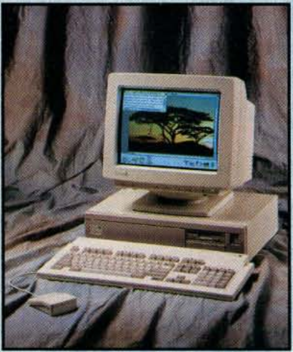
Normal Price £1299 + VAT
Save Over £300

Special Offer £999 + VAT
(£1173.83 INC VAT)

The A3000 Learning Curve is also available if required. This includes Pacmania & Lemmings games, Genesis II Database, 1st Word Plus, Acorn PC Emulator and a 120 min audio training tape. Just add £40 + VAT (£47.00 inc VAT).

Courier Delivery Please add £9.00.

The A5000 Learning Curve



The A5000 is now available from BEEBUG, either from our showroom or mail-order.

BEEBUG are one of Acorns largest dealers and have been supporting the Archimedes range since its launch.

You can have total confidence in BEEBUG. Our technical team are always on-hand to provide any assistance and help that you may need with the A5000.

BEEBUG & RISC Developments also produce the magazine RISC User, dedicated to the Archimedes range.

BEEBUG - The Archimedes Specialists

A5000 Features

☐ RISC OS Version 3
☐ ARM 3 For Unbelievable Speed
☐ 1.6 Mb Format Floppy Drive
☐ 40 Mb IDE Hard Drive
☐ Acorn Multi-Scan Monitor

The New Learning Curve Pack

☐ New Multi-tasking PC Emulator
☐ Genesis 2 Database
☐ 1st Word Plus Wordprocessor
☐ Acorn DTP
☐ Lemmings and Pacmania Games
☐ Audio Training Tape
☐ Optional 300 dpi Ink Jet Printer

The A5000 Learning Curve Complete With Acorn Multi-scan Monitor Is Now Available For £1799 Inc.
Phone Or Write To Reserve Yours Now !
Courier Delivery Please Add £9.00.

Educational Establishments
Please Ask For Our Educational A5000 Price

0% Finance Over 12 Months NOW AVAILABLE ON THE A5000.
Deposit £179 Plus 12 payments of £135. APR 0%. Please ask for a finance application form.

BEEBUG

Phone Or Write For An Information Pack
All products covered by 12 months full warranty
Access / Visa / Switch / Cheque / Official Orders Welcome
Showroom hours Mon to Sat 9 am - 6 pm (Thu until 8 pm)

Beebug Ltd, 117 Hatfield Road, St. Albans, Herts. AL1 4JS. TEL 0727 40303 FAX 0727 860263

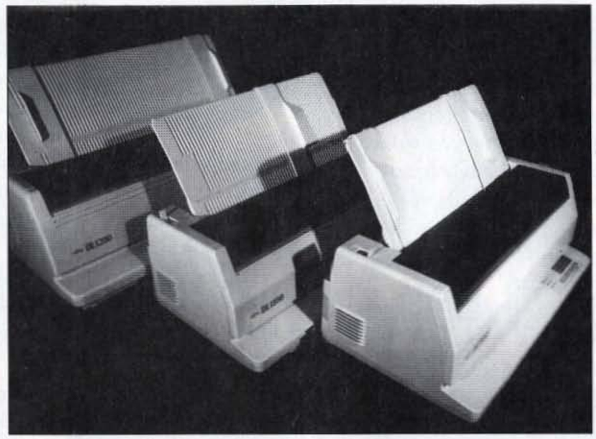
To Russia with love

IF YOU'VE ever wondered what is popular on Russian television, then ponder no longer – Love at First Sight. It's almost a direct translation of the Sky TV version, in which three lads and three lassies must decide who they would date after being presented with a series of questions.

On-screen graphics abound: A love board, sprays of hearts as well as the contestants' names. All generated by the Archimedes, which also controls the sound effects and button interfaces on the contestants' consoles.

The software has been written by Chris Goss from G Graphics. Using a Prisma 3 graphics engine he obtains broadcast quality genlock video signals and these are used to give real-time animation and video effects.

Text files are provided by the game show production team which are transferred to the Archimedes via the PC emulator. Writing most of his programs in BBC Basic, Chris commented: "The Basic on the Arc is comprehensive enough to give me all the facilities I need, and the Arc provides all the speed I need."



Printer cuts

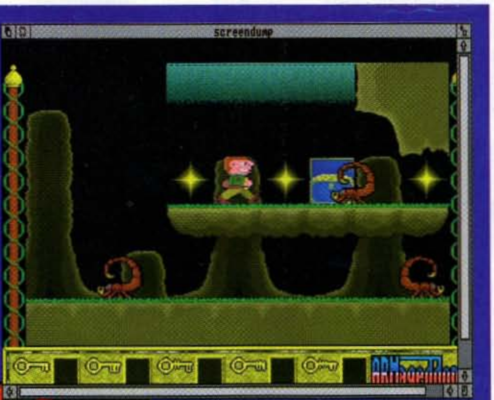
FUJITSU (081-573 4444) have just cut some of their printer prices by 16 per cent. Asked why, product manager John Goodyear remarked: "The market has seen computer prices tumble in recent months: Now users can get much lower price, quality printers ... the result of improved manufacturing efficiencies."

All dot matrix models, the DL900 is now £249, the DL1100 is £299 and the DL1200 and DL3600 are now £499 and £699 respectively. All offer paper parking, zero tear off as well as the ability to handle cut-sheet and continuous paper, envelopes and labels.

The printing speeds are more than respectable too, with the top end DL3600 managing 360 and 108 characters per inch in draft and letter quality modes.

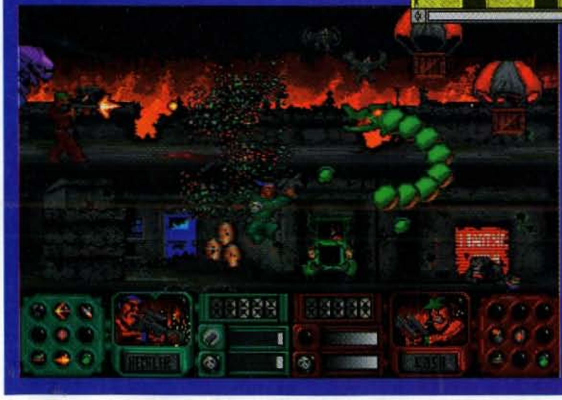
Atomic addiction

NEW software house Atomic have launched two new games for the Archimedes both priced at £19.95.



Bobby Blockhead vs The Dark Planet has been written by the ARMageddon team – well known for their public domain demos. A platform game inspired by the classic 50s B-movies, it stars a mere army private and part-time potholer.

Finding himself a prisoner in an alien underground base his first thought is escape. As he passes glowing crystals and chests of gold, who could blame him for taking some along. Unfortunately the huge mutant insects aren't as understanding, while mad robots will kill him if they can.



The second game is of a different ilk. Aggressor is the first game from Frederick and Jensen Akinlawon. Capturing the dark atmosphere of Aliens, Predator and Terminator, this shoot-'em-up is set against a backdrop of a war-torn Earth.

Alien attack has destroyed mankind and only a handful of survivors have managed to make it to the relative safety of space. You control two hardened troops of humans from the 101st Aggressor unit.

The aim of the game is simple – fight. Against you are a host of alien species and tough end of level guardians. The game features two player simultaneous control, parallax scrolling, eight levels of action and superb graphics.

Diary dates

All Formats Computer Fairs
January 11 -26
Various venues
Contact: Newsline, 0898 299389

Held in a variety of sites from Birmingham's Motorcycle Museum to City Hall in Candleriggs, Glasgow. There are five shows planned in January in Birmingham, Leeds, London, Bristol and Glasgow. Fairs run from 10am to 4pm and admission is £4.

Bett '92
January 22-25
Barbican Centre, London
Contact: EMAP, 071-404 4844

There are always many new hardware and software launches here. Primarily aimed at teachers and IT coordinators, this year's show will be stressing the practical aspects of IT in the curriculum with a comprehensive program of free seminars and demonstrations.

The Education Show
March 5-7
NEC, Birmingham
Contact: EMAP, 071-404 4844

Sponsored by the National Curriculum Council this is the second annual show. Again stressing the practical aspects of education, this show has a wider curriculum base.

Midi Music Show
April 24-26
Hammersmith, London
Contact: Westminster Exhibitions, 081-549 3444

This third show is aimed at musicians and anyone interested in computers and music, for making sounds in their own right or for incorporating them into bigger and better things.

Configuration

THE range of Archimedes with different memory, hard disc types and species of Arm is vast. The situation can be further complicated by digitisers, samplers and scanners, resulting in some people having problems loading games.

4th Dimension (0742 700661) have released two programs to overcome potential problems with their games. !ConSaver and !ReConfig allow you to save your normal configuration but if necessary, will configure your machine to the optimum for running the game.

ovation

Professional Desktop Publisher

Ovation sets new standards of quality and value by offering professional features in an easy-to-use package at a very competitive price. We guarantee that you will be able to produce high quality documents within hours of opening the package. Ovation provides a formidable array of desktop publishing features, yet can be used just like a traditional word processor to produce single page letters or entire books with complete ease.

Price £99.00 + VAT

Features include:

- *multitasking/multi-documents*
- *full WYSIWYG display*
- *fast spelling checker (needs 2Mb)*
- *variable views • headers/footers*
- *font size 1-1000pt • master pages*
- *import draw & sprite files*
- *full colour support • linked frames*
- *multiple columns • stylesheets*
- *definable frame borders*
- *auto hyphenation (needs 2Mb)*
- *find & replace • line drawing*
- *cut, copy, paste via clipboard*
- *dot-matrix & laser printer drivers*

Please write or phone for a full specification.

The package includes a 250 page user guide for novices and experienced users, a quick reference card, 7 outline fonts, and a range of clipart.

C for the Archimedes, A3000 & A5000 Systems

The C development system is a **complete C language** at an incredible price. It is ideal for beginners, but may be used by experienced C programmers to develop large applications.

The package includes a **multi-tasking editor** from which programs may be compiled and executed without leaving the desktop. In fact you can compile, link and run C programs at the press of a key.

The **compiler** is quick, easy-to-use and generates ARM code which may be linked to other programs using the **linker**. Compiler errors are automatically highlighted in the editor for easy correction.

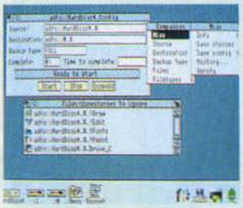
The package includes a 200 page user guide, editor, compiler, linker and library of functions. Requires 1MB RAM and single floppy drive only.

A comprehensive range of Acorn compatible **RISC OS functions** is included, allowing complete WIMP applications to be written. New libraries of functions may be created, or functions added to the existing libraries using the built-in **library manager.**

Price £77.39 + VAT

Hard Disc Companion

Version 2 of this best selling hard disc backup program has many new features, and is twice the speed of the original program.



Features include:

- *Full & incremental backups*
- *Backup to floppy or hard drives*
- *Backup only specified objects*
- *Backup/ignore specified filetypes*
- *Suspend backup & resume later*
- *Estimates time for backup*
- *Configuration scripts*
- *ADFS, SCSI and IDE compatible*
- *Ignore specified files/directories*
- *Verify option*
- *Full and selective restore*
- *May be used to backup networks*

Price £45.00 + VAT.

Upgrade from version 1, £15.00 + VAT + £1 carriage.
Please return original disc to the address below.

Star Colour Printer Driver

This RISC OS printer driver was developed in conjunction with Star Micronics for their excellent range of colour printers.. It gives superb results on both 9 and 24-pin printers, and is ideal for all applications that use RISC OS printer drivers. It is a Release 2 driver, supporting various print resolutions and 'fancy' text printing, and is suitable for the following range of printers:

- Star LC24-200 colour
- Star XB24-10 colour
- Epson JX compatible
- Star LC-200 colour
- Star LC-10 colour
- Epson LQ & SQ colour

Price £15.00 + VAT.

The official Star Micronics printer driver.

Quality software for the Archimedes, A3000 & A5000 systems

RISC developments

These products are available from all good dealers

RISC Developments Ltd. 117 Hatfield Road, St. Albans, Herts. AL1 4JS Tel: 0727 40303 Fax: 0727 860263

Design update

FURTHER to our review of Design Concept's (031-668 4518) utilities in the December issue there have been some changes. Now when you order these extremely good value for money programs, you'll find that they have been updated and refined and the few problems our reviewer came across have now been corrected.

Not only has Freehand been tidied up but you can now save straight into Impression quickly and easily while Shade has been enhanced too.

The price has changed though. Shade and Keycaps now retail for £4 each with Fontlist at £3, Freehand and Back at £5, while Minder remains at £2. In addition, there is a carriage charge of £2 per order.

Just out are some more programs which promise to be just as useful and good value. Killer will only cost you £4 and is aimed at programmers. It allows you to move windows without title bars, scroll other windows which don't have scroll bars and kill any window with a simple click. Speedo is a snip at £2 telling you how fast – in hertz – your computer is running.

Watch out for Italic. For £10 you can italicise any font, then save it as a new font, which can then be used with any other program.

More Arm

ALEPH ONE (0223 811679) has dropped the price of their Arm 3 Upgrade again this month to £249 plus VAT, reflecting the decrease in the cost of building the boards.

Aleph will fit the upgrade for you for only £35. As it's been tested by Acorn, if your A3000 is upgraded by Aleph your warranty will remain in tact.

Expansion buffs should look out for the first 80386-compatible PC expansion card promising to dramatically improve the speed of Dos emulation under Risc OS.

Rodent news

IF THE mouse on your Archimedes is looking a little worn, Clares Micro Supplies (0606 48511) have a suggestion – replace it with their Micro Mouse.

Ergonomically designed it is comfortable to use and the new shaped buttons provide tactile feedback, while its tough design means that it can work without a mouse mat. And with a six foot lead it can be used at the other end of the desk without moving the keyboard – all for £32.

Conserving ink

LASER printer owners will already know how much money is to be saved by refilling toner cartridges rather than replacing them. Now a new service from Beach Imaging (081-850 8344) offers a similar service to ink jet printer owners.

The problem with ink jet printers is that you sometimes find that you have to discard your printer cartridge just because one of the colours has run out while the other two are going strong.

If you have an HP Deskjet, HP Paintjet or Canon BJ10e Compujet offers the first comprehensive range of inkjet cartridge refill kits. These could save you 50 per cent on cartridge costs with the minimum of fuss.

Riscy products

TWO new software packages for the professional Archimedes user have been released by Risc Developments (0727 40303).

ChartWell retails for £29.85 and offers sophisticated graphics and charting. Twenty four different graph types are at your disposal including horizontal and vertical bar charts, line graphs, scatter charts, polar plots and pie charts.

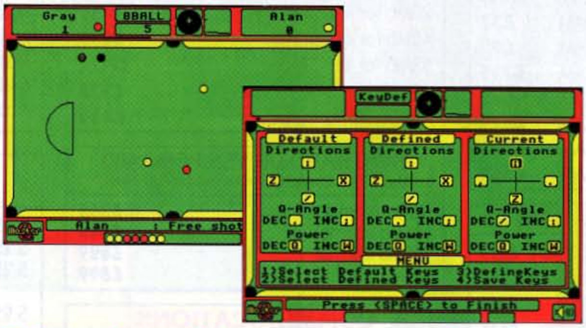
A single chart or graph can display up to six different data sets including up to six pie charts in one display. You can also proportionally size, withdraw segments in pie charts and add labels.

Information can be ported from other applications and you have complete control over colour, data point styles, bar widths and the like. There are even style sheet options.

PolyGlot is a fully multi-tasking application to give access to foreign language characters sets while in DTP and word processing packages, or even spreadsheets and databases.

Easy to use and only costing £19.95 it allows you to see all the characters you need in one window in both upper and lower case format.

You don't need keyboard overlays or even to set your keyboard to a foreign standard. You can even work with different languages at the same time.



Master the green baize

NEW for BBC owners is a pool game from 4th Dimension (0742 700661). Called Q-Master it offers five different types of game to choose from. You can play against the computer, edit the table layout, or practice those tricky shots.

The overhead view helps with accuracy, while the action replay facility lets you admire your skill. It's available on 5.25ins or 3.5ins disc for £14.95 or £15.95 respectively.

Ace driver

WINGING its way from Ace Computing (0223 322559) is a printer driver for the new Hewlett Packard Deskjet 500C. Access to this colourful, powerful, fast and quiet printer will cost you £15 plus VAT and postage and packing.

Ace Computing also provide drivers for most Epson compatible printers with a colour ribbon. In addition Ace also allow your Archimedes to talk to the Integrex ColourCel, HP Paintjet and Canon PJ1080-A.

Break into DTP

IF YOU want a new computer to astound colleagues with your desktop publishing, take a look at Beebug's (0727 40303) limited period special offer.

You can save £300 with their DTP System. It comprises an A3000, colour monitor, 1Mb ram upgrade, 20Mb internal IDE hard drive plus the Ovation DTP product. Normally this complete package would cost you £1,299. Now it only costs £999.

If you want the Learning Curve system it'll cost you an extra £40 but all machines are installed, configured and ready to use. You'll even find the Acorn Applications Suite on the hard drive.

Ram herds

ALTHOUGH the A5000 is new, enhancements are already making their appearance. Risc Developments (0727 40303) have announced a new ram card. Populated with 2Mb it'll upgrade a standard A5000 to a full 4Mb. Or you could opt for the 3Mb version which will coincide with Acorn's launch of the 1Mb A5000.

By using the latest surface mount component technology and circuit board layout Risc have kept the card down in size to 104 x 80mm. Retailing for £129 it's the first such unit to be released.

Keeping record

Archivist is a new database from Oregan Developments based in Sutton Coldfield. Available for £24.95, it is aimed at education, having been designed in accordance with local authority guidelines.

Promising to be powerful and easy to use it offers simple to design cards, automatic equation calculation, password protection, a wide range of import and export files plus much more.

FREE 1 YEAR'S ON-SITE MAINTENANCE with Archimedes Micros

College Computers

FREE DELIVERY on all Archimedes Micros

ARCHIMEDES

SYSTEM	ENTRY	COLOUR	MULTISCAN
A3000	£599	£819	£849
A3000 Learning Curve	£642.29	£885.05 INC STAND	£892.29
A420/1 Learning Curve	£1114.83	£1334	£1364
A540/1	£2495	£2715	£2745

SYSTEM	ENTRY	COLOUR	MULTISCAN
A5000 1Mb RAM floppy drive	£999	£1219	£1249
A5000 2Mb RAM 40Mb HD	—	—	£1499
A5000 Learning Curve	—	—	£1531.06
A5000 Learning Curve and Printer	—	—	£1765.96

A3000 ACCESSORIES

3.5″ External Drive	£97
Monitor Stand	£15
External Podule Case	£12
Serial Upgrade	£16
A3000 Technical Manual	£28
Dust Cover Micro/Monitor	£5
Dust Cover Micro	£9
User Port/Midi Upgrade	£44
UHF TV Modulator	£29

RAM UPGRADES FOR ARCHIMEDES

A3000	Upgrade to 2Mb RAM	£49
A3000	Upgrade to 4Mb RAM	£164
A305	Upgrade to 1Mb RAM	£48
A305/A310	Upgrade to 2Mb RAM	£229
A305/A310	Upgrade to 4Mb RAM	£419
A410/1	Upgrade to 2Mb RAM	£37
A410/1	Upgrade to 4Mb RAM	£99
A410/1	Upgrade to 8Mb RAM	£725
A420/1	Upgrade to 4Mb RAM	£72
A420/1	Upgrade to 8Mb RAM	£679
A440/1	Upgrade to 8Mb RAM	£569
R140	Upgrade to 8Mb RAM	£569

CONCEPT KEYBOARDS

A4 Standard Keyboard inc BBC Software	£115
A3 Standard Keyboard inc BBC Software	£140
A4 Archimedes Keyboard	£116
A3 Archimedes Keyboard	£141

PLOTTERS

ROLAND		SKETCHMATE	£316
DXY-1100	£498	GRX-300	£2560
DXY-1200	£628	GRX-400	£3425
DXY-1300	£830	DPX & GRX Include	
DPX-2500	£2348	12 months on-site	
DPX-3500	£2960	maintenance	

ARCHIMEDES ACCESSORIES

NEW Multitasking RISC OS	£28
3.5″ 800K 2nd Floppy Drive (305/310)	£109
5.25″ 800K External Floppy Drive	£84
I/O Podule (Analogue & User Port & 1MHz Bus)	£75
MIDI add-on to I/O Podule	£27
MIDI Expansion Card	£64
Econet Network Board	£43
IEEE Interface Adaptor	£265
16 Bit Parallel I/O Card	£193
Software Developers Toolbox	£147
Floating Point Unit	£449
SCSI Adaptor Expansion Card	£159
Keyboard Extension Lead	£5
2 Podule Backplane	£24
4 Podule Backplane	£37

HARD DISK DRIVES (ST506)

20Mb for 410 ST506	£159
40Mb for 410 ST506	£235
53Mb for 410 ST506	£POA
A3000 20Mb + Podule	£335
A3000 40Mb + Podule	£449

SCSI HARD DRIVES FOR A400

Supplied complete with controller card.

52Mb Internal	£348
105Mb Internal	£549
170Mb Internal	£829
210Mb Internal	£899

COMMUNICATIONS

Amstrad SM2400 V22BIS	£109
Miracom WS4000	£96
Miracom WS3000 V22BIS	£221
Pace Linnett Plus	£98
Pace Linnett 1200 V22	£153
Pace Linnett 2400 V22BIS	£189
Pace Linnett 32	£366
Hearsay comms software	£48
BBC/Master Modem Cable	£14
Archimedes Modem Cable	£14

BBC MASTER SYSTEM

Acorn Master 128 Computer
Cumana CDX400 Dual Drive
Microvitec Colour Monitor
Two Tier Monitor Stand.

£679

BBC B and MASTER ACCESSORIES

Turbo 65C102 Add-on-Module	£113
Econet Module for Master	£44
Twin ROM Cartridge for Master	£12
Master Reference Manual I (No VAT)	£13
Master Reference Manual II (No VAT)	£13
Master Advanced Ref Manual (No VAT)	P.O.A.
64K Upgrade Kit for B +	£31
Acorn 1772 DFS Complete Kit	£47

MASTER 128 CUMANA DISC DRIVES

5.25″ 200K Single 40T No PSU	£64
5.25″ 200K Single 40T With PSU	£79
5.25″ 400K Single 40/80 Switchable No PSU	£79
5.25″ 400K Single 40/80 Switchable With PSU	£89
5.25″ 400K Dual 40T No PSU	£125
5.25″ 400K Dual 40T With PSU	£149
5.25″ 800K Dual 40/80 Switchable No PSU	£159
5.25″ 800K Dual 40/80 Switchable With PSU	£179
3.5″ Single Drive No PSU	£64
3.5″ Single Drive With PSU	£79
3.5″ Dual Drive With PSU	£125
3.5″ + 5.25″ 40/80 Switchable	£169

THE INTELLIGENT CHOICE FOR Acorn

College Computers

SPECIALISTS in the supply of COMPUTERS to PRIMARY, SECONDARY and TERTIARY EDUCATION

ARCHIMEDES SOFTWARE

ART/DESIGN/GRAPHICS	
Artisan II	£92
Atelier	£63
Autosketch II	£66
Gamma Plot	£38
Graph Box	£57
Mogul	£18
Poster	£77
Pro Artisan	£71
Render Bender 2	£95
Sigma Plot	£38
DATABASES	
AlphaBase	£34
Genesis	£64
Multistóre	£192
DESKTOP PUBLISHING	
Acorn DeskTop Publisher	£125
Impression Junior	£77
Impression II	£131
Tempest	£93
INTEGRATED	
Desktop Office	£96
Logistix	£77
Pipedream 3	£118

We also carry a wide range of GAMES and LEISURE software. Call for details.

LANGUAGES	
ANSI C Rel 3	£122
Assembler	£145
Fortran 77	£75
ISO-PASCAL	£75
LISP	£145
Prolog X	£145
SILICON VISION	
Arc PCB Professional	£269
Gerber Plot	£91
Realtime Solids Modeller	£132
Risc Basic	£72
Robo Logo	£52
Solid Cad	£115
Solid Render	£115
Solid Tools	£269
Super Dump	£19
Super Plot	£28
SPREADSHEETS	
Intersheet	£23
Schema	£90
Sigmasheet	£38
Viewsheet	£44
WORDPROCESSORS	
1st Word Plus II	£68
Easiword	£29
Interword	£23
Pendown Archi	£47
View	£44

LASER PRINTERS

FREE Parallel Printer Cable With All Lasers

	PPM		
Brother HL-4	4	*	£598
Brother HL-4V	4	*	£710
Brother HL-8e	8	*	£939
Brother HL-8V	8	*	£1050
Brother HL-8PS Postscript	8	*	£1386
Canon LBP-4 Plus	4	*	£584
Laser Direct Hi-Res Card for LBP4			£319
Mannesman Tally MT 904	4	*	£540
Canon LBP-8111 Plus	8	*	£975
Canon LBP-IIIT Dual Bin	8	*	£1356
Canon LBP-IIIR Dual Bin Duplex	8	*	£1460
Epson EPL-4100	6	*	£574
Epson EPL-7500 Postscript	6	*	£1178
HP Laserjet IIIP	4	*	£699
HP Laserjet III	8	*	£1025
HP Laserjet IIID Dual Bin Duplex	8	*	£1740
IBM 4019E XL	5		£735
IBM 4019 XL	10		£990

	PPM		
Kyocera F800T	8	*	£929
Laser Direct	6		£844
NEC Silentwriter 2 S60P P/Script	6	*	£1180
NEC Silentwriter 2 290 P/Script	8	*	£1408
NEC LC890XL Postscript	8	*	£2330
NEC Colourmate PS P/Script		*	£3590
OKI Laser 400 0.5Mb	4	*	£490
OKI Laser 800 0.5Mb	8	*	£870
OKI Laser 840 P/Script 2Mb	8	*	£1200
Panasonic KXP4420	8	*	£629
Panasonic KXP4450i Dual Bin	11	*	£935
Panasonic KXP4455 D/Bin P/Script	11	*	£1466
QMS PS410 Postscript	4		£1330
QMS PS810 + Postscript	8		£1989
Sharp JX9500H	9	*	£639
Star LP-4	4	*	£573
Star LP-4PS Postscript	4	*	£796
Star LP-8 III	8	*	£936
Star LP-8 III Starscript P/Script	8	*	£1158

All printers marked by an * include 12 months on-site maintenance.

MONITORS

SPECIAL OFFER
14" Multiscan Hi-Resolution 0.28 Dot Pitch, 1024 x 768 **£239**

MICROVITEC	
1431 Standard Resolution	£165
1451 Medium Resolution	£199
14M325 (CUB 3000) Medium Res.	£167
1441 High Resolution	£349
2040CS 20" High Resolution	£659
Touchtec 501 Touch Screen	£234
PHILIPS	
BM7502 12" Hi-Res Green	£68
CM8833/II 14" Medium Res	£167

NEC	
Multisync 3FG 15"	£370
PANASONIC	
14" Multiscan	£228
TAXAN	
770LR 14" 0.31 Dot Pitch Low Rad	£365
775 14" 0.28 Dot Pitch Hi-Res	£365
795 Trinitron 0.26 Dot Pitch	£405
875 17" 0.26 Dot Pitch	£709
VIDC Enhancer Board	£24

PRINTERS

FREE Parallel Printer Cable With All Printers

Canon BJ10ex Portable	£186
Canon BJ300*	£340
Canon BJ330*	£389
Canon BJC800	£1240
EPSON	
LX-400	£105
LX-850+	£145
LX-1050	£210
FX-850	£272
FX-1050	£344
DFX-5000	£1087
DFX-8000	£1985
LQ-200	£169
LQ-450	£175
LQ-570	£214
LQ-870	£372
LQ-860 Colour	£456
LQ-1010	£275
LQ-1070	£320
LQ-1170	£441
LQ-1060 Colour	£603
LQ-2550 Colour	£685
SQ-850	£436
SQ-2550	£628
Hew/Pack Thinkjet*	£270
Hew/Pack Quietjet*	£303
Hew/Pack Quietjet Plus*	£389
Hew/Pack Deskjet 500	£275
Deskjet 500C	£486
Deskwriter (MAC)	£317
Hew/Pack Paintjet*	£437
Hew/Pack Paintjet XL*	£1049
Hew/Pack Rug/Writer*	£929
IBM Proprinter 24P	£209

IBM Series II 2380	£270
IBM Series II 2381	£336
IBM Series II 2390	£310
IBM Series II 2391	£370
IBM Quickwriter 5204	£490
IBM Execjet 4072	£440
Integrex Colour Jet	£498
Mannesman Tally MT81	£91
Nec P20	£184
Nec P30	£247
Nec P60	£340
Nec P70	£429
Nec P90	£638
Panasonic KXP1170	£105
Panasonic KXP1123	£135
Panasonic KXP1124i	£180
Panasonic KXP1695	£279
Panasonic KXP1624	£279
Panasonic KXP 2624 Colour*	£356
Panasonic KXP1654*	£340
STAR	
Starjet SJ48	£178
LC20	£105
LC200 Colour	£150
LC15	£178
LC24-10	£142
LC24-200	£172
LC24-200 Colour	£209
LC24-15	£249
ZA200 Colour*	£242
ZA250 Colour*	£304
XB24-200 Colour*	£304
XB24-250 Colour*	£365

Printers with * inc 1 years on-site maintenance.

DELIVERY Archimedes Micros only: Free Delivery
Hardware: £7 + VAT per box
Software: £7 + VAT per order
Lasers: £15 + VAT per printer
Next Working Day Service - call for details. UK Offshore - call for details

ALL PRICES EXCLUDE VAT

CREDIT CARD MAIL ORDER HOTLINE

☎ 081-680 5686

FAX: 081-760 9861

College Computers

Prices are subject to change without notice. Please check suitability with the manufacturers before ordering. Goods are not offered on a trial basis. Orders are accepted subject to our standard conditions of sale – available on request. E&OE.

Subject to availability despatch is normally effected within 2 days from receipt of cleared payment. Please allow 7 working days for cheque clearance. All orders will be fulfilled within 28 days unless otherwise notified.

College Computers, 14 Emmabrook Court, Sea Road,
Rustington, Littlehampton, Sussex BN16 2NG

To: **College Computers, 14 Emmabrook Court, Sea Road,**
Rustington, Littlehampton, Sussex BN16 2NG. I wish to order

QUANTITY	DESCRIPTION	PRICE

Please state disk size
I enclose cheque/PO for £ inc VAT
or charge my Access/Visa No: Exp. date

Delivery	
Total	
VAT	
Total £	

Name
New/Old customer (please delete). Account No. (if known)
Address
Postcode Tel No:

AU1

GAME
HACMAN

New games for old

- Sabre Wulf
- Castle Quest
- Winter Olympiad '88
- Last Ninja
- Ricochet

WELCOME to the first column of the New Year, and I must say it's great to still be going strong. And the reason *we* are still going strong, of course, is that our beloved BBC Micro – together with its big and little brothers – is still going strong.

It must be about seven or eight years ago that it first became fashionable in the general computer press to knock the BBC Micro. Its relative lack of memory and relatively high price when compared to the Spectrum and Commodore 64 were popular target areas.

However, what the general press failed to take into account was that the price reflected its inherent quality and expandability.

How many other machines could simultaneously drive the normal expansions of disc drive and printer, together with teletext receiver, music synthesiser, laserdisc system, and all the other add-ons that I and many other enthusiasts have added to their computer system?

When I came to replace my BBC Model B, my only realistic choice of the time was a BBC Master.

In addition, Acorn's decision to devote 32k of the BBC Micro's 64k to rom meant that programmers had access to a fast powerful language and a superbly flexible operating system which provided many features that programmers on other machines had to write by hand, or do without.

On the subject of software, yes, there may not have been as many software houses writing for the Beeb and its eventual baby brother, the Electron, as for their rivals, but we have been anything but starved of quality software.

Indeed, many hit all-format programs, such as Elite and Repton 3, originated on the BBC. Moreover, software houses such as Superior and Impact/Fourth Dimension are only in business to make a living, and their loyalty to our machines only goes to show that we must be supporting them as well.

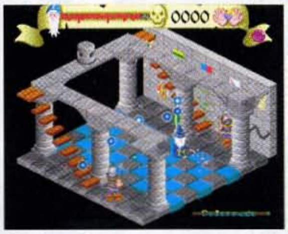
Hats off, one and all, to the BBC Micro, Electron and Archimedes. Long may they prosper.

Games, games, games..

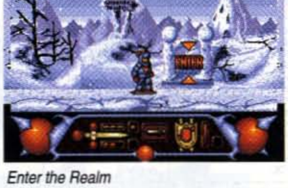
Some of you may have new computers, others may be reading for the first time after the Christmas purchase of an Archimedes-series machine. Many will have money burning holes in their pockets. How should the hungry electronic beast best be fed?

Well, there are some great games around at the moment, headed, for my money, by **Pandora's Box** from The Fourth Dimension.

I previewed it in my November 1991 column and it has been reviewed in this very issue, so I won't go into it again, except to say that it is an extremely absorbing arcade-adventure in the visual style of Knight Lore and Alien-8. Well worth looking into.


Pandora's Box

Enter the Realm from the same company, and also previewed in my November column, I found it a bit disappointing. Sure, it's very pretty, but a bit too much like a jazzed-up Stryker's Run for my liking.


Enter the Realm

It's addictive, but I found it very frustrating to have to wade through about half a dozen between-play screens before I could get back into the action.

Air Supremacy from Superior is a strategic battle command game set in various time zones from 1914 to the future. It uses the same screen display as Lander/Zarch/Conqueror, and although it is quite a different game to its predecessors I found myself wondering if I would really buy one if I already had one of the others.

On the 8-bit machines Superior's **Play It Again Sam 15** and **16** compilations have something for everyone. Shoot-'em-ups, strategy, arcade-adventure, they're all here. And don't forget the others – some of the older games are still my favourites.

While on the subject of older games, a quick plug. Over the years there have been some great games that have long since gone to ground for whatever reason, and now are not even names to many games players.

Cylon Attack, Eagle's Wing, Wizadore, Knight Lore, Chuckie Egg – to any BBC owner who was in there at the beginning these great names will bring back a lot of memories.

Steve Hanson of Superior is always on the lookout for new games and oldies-but-goodies to (re-)release on Sam compilations, and I would very much like to see these and other such games from Ultimate, Ocean/Imagine, A+F, Software Invasion and the like brought back into the limelight.

If the authors or copyright holders of these and other such games would

Bouncing back again, and again, and again

I recently received a letter from Malcolm Watt of Llanishen, Cardiff, asking for help with Superior's great arcade-adventure **Ricochet**.

I sent him the passwords for the five levels as he requested and dug back through my past columns for details of the game's built-in cheat facility, but to my considerable surprise I have never featured it.

I was particularly surprised because the facility was first mentioned to me by Steve Hanson of Superior before the game was even released, but I suppose from time to time things do slip through the net.

The cheat allows you to restore your energy to maximum at any point in the game: To invoke it, enter as a password the word **ERYNMOUNT**, then pause the game and press simultaneously all the keys that make up the word **HONESTY**. Your energy will be restored to maximum.

Problem Corner

Benjamin Phillips of Corby, Northants, is having problems with **Castle Quest**. He has got the bucket, and necessarily the aqualung, but cannot kill the witch.

When he throws the bucket at her it just goes straight through her, then she kills him.

Well, Benjamin, just carrying the bucket is not sufficient to kill the witch: You must first have filled it with water. To do this you first store the aqualung in your backpack, then hold the bucket in your hand.

Now go to a ladder that leads down into the moat and stand just above the waterline. Duck down into the water so that the bucket is submerged, then come straight back up before you run out of breath.

Now you can go to the witch in the knowledge that she's in for a very nasty surprise. Happy Questing.

also like to see their games back in the public eye, would they please contact Superior.

On the conversions front there's the highly addictive, and very funny, Lemmings from Krisalis, and Towers of Babel from Cygnus Software Engineering.

Lemmings are cute, cuddly and very, very stupid. Your task is to guide them through 120 levels of increasing lethality. Towers is a complex 3D puzzle game where you control three robots which must collect objects while avoiding getting zapped or mined. It comes complete with screen designer.

Elite – fave rave of my buddy The Mad Hatter – has generated a lot of controversy. Having spoken to the authors, and not wanting to get embroiled in this, they would like it to be known that they wrote Elite – not Elite Plus or Elite 2 – there was no intention to do anything else.

There are 20 new ships, at least four new ways that ships behave, including the pirate who'll shoot at you then wait for you to dump your cargo, the asteroid miners and the scavengers.

You too can play the scavenger. Just find some police ships and tag along with them, picking up the cargo of pirates they kill. You couldn't play Elite on the 32 bit machines before – now you can.

Compatibility Corner revisited

Simon Urch of Holmes Chapel, Cheshire, has written in with a tip that I am sure will be of use to a group of readers. Simon has a Watford Electronics DDFS 1.54T disc filing system fitted to his machine, and he has found that the speed-skating event of **Winter Olympiad '88**, as featured on Superior's Play It Again Sam 8 does not load directly on his machine when the disc is booted using the normal Shift-Break sequence.

However, Simon points out that Winter Olympiad '88 can be loaded using the command *WINTER from the normal Basic prompt, and all parts of the game will now load perfectly.

Thank you Simon.

Dishonour to your ancestors...

In the last column I featured a snippet that explained how to get past the dragon at the end of the first level of the original Last Ninja.

It then occurred to me that The Last Ninja is a game I have never really covered, so to make amends – in response to requests for help from a number of readers – I now present a couple of routines I have written to make things a little easier.

Listing I provides almost every possible cheat for the original and Play It Again Sam 12 tape versions of The Last Ninja. Listing II provides the same for the 5.25in disc versions. The routines can tell the version on which they are running. Electron and Master Compact versions will follow if anyone shouts loudly...

As usual, type in the appropriate listing and save it on a blank tape or disc. As they stand, all cheats are enabled, so make any required modifications before typing RUN. Follow the on-screen instructions and you're away.

Pausing briefly to announce that programmer-extraordinaire Peter Scott is, as I write, coding The Last Ninja for the Archimedes – more of that soon – until we meet again, Sayonawa!

Listing I: BBC tape Last Ninja cheat

```
  10 REM BBC Last Ninja cheat
  20 REM for original and Sam 12 cassett
e versions
  30 REM by Hac-Man 1991
  40 REM (C) The Micro User
  50 REM
  60 S%=1:REM start level
  70 L%=3:REM number of lives
  80 PL%=8:REM rate of power los@L = s
  90 FOR I%=0 TO 2 STEP 2:P%=&5000:[OPT
I%
 100 JSR &5080
 110 LDA# S%+&30 : STA &228E : STA &229B
 : \ set start level
 120 LDA# S%-1 : STA &230A : \ set resta
rt level
 130 LDA# &A5 : STA &24E6 : \ infinite l
ives
 140 LDA# L% : STA &23CC : \ number of l
ives
 150 LDA# PL% : STA &2498 : \ set rate o
f power loss
 160 LDA# &00 : STA &2498 : \ no power l
oss
 170 LDA# &00 : STA &1920 : \ walk over
rivers
 180 JMP 8969
 190 ]::NEXT
 200 !&5080=&208DA9A9:!&5084=&8D50A902
 210 !&5088=&0EA90221:!&508C=&F42004A2
 220 !&5090=&A09FA2FF:!&5094=&FFF72050
 230 !&5098=&04A20DA9:!&509C=&4CFFF44C
 240 !&50A0=&4E494E2E:!&50A4=&332D414A
 250 !&50A8=&8A48080D:!&50AC=&AD489848
 260 !&50B0=&FE2903CA:!&50B4=&6803CA8D
 270 !&50B8=&68AA68A8:!&50BC=&524D6028
 280 *KEY0 LOAD"LAST-NJA1"|F|M END|M OLD
|M 200CALL&5000|M RUN|M
 290 MODE 7
 300 PRINT "Please insert Last Ninja tap
e and press any key...";:*FX 15,0
 310 A%=GET:VDU 10,21:*FX 138,0,128
 320 END
```

Listing II: BBC 5.25" disc Last Ninja cheat

```
  10 REM Last Ninja cheat
  20 REM for original and Sam 12 5.25" d
isc versions
  30 REM 40 and 80 track versions
  40 REM by Hac-Man 1991
  50 REM (C) The Micro User
  60 REM
  70 S%=1:REM start level
  80 L%=3:REM number of lives
  90 PL%=8:REM rate of power loss
 100 osbyte=&FFF4:oscli=&FFF7
 110
load1$="L.NINJA3":load2$="L.NINJA2":cli2
=&190
 120 FOR I%=0 TO 2 STEP 2:P%=&3000:[OPT
I%
 130 LDX# cli1 MOD 256 : LDY# cli1 DIV 2
56 : JSR oscli
 140 LDA 8969 : CMP# &A9 : BEQ pokes
 150 LDA# 96 : LDX 1095 : CPX# &4C : BEQ
 sam12 : STA 1177 : JMP call
 160 .sam12 STA 1095 : .call JSR 1024
 170 .pokes
 180 LDA# S%+&30 : STA &228E : STA &229B
 : \ set start level
 190 LDA# S%-1 : STA &230A : \ set resta
rt level
 200 LDA# &A5 : STA &24E6 : \ infinite l
ives
 210 LDA# L% : STA &23CC : \ number of l
ives
 220 LDA# PL% : STA &2498 : \ set rate o
f power loss
 230 LDA# &00 : STA &2498 : \ no power l
oss
 240 LDA# &00 : STA &1920 : \ walk over
rivers
 250 JMP run
 260 .cli1
 270 ]:$P%=load1$:P%=&78:[OPT I%
 280 .run LDX# cli2 MOD 256 : LDY# cli2
DIV 256 : JSR oscli
 290 JMP &2309
 300 ]:NEXT
 310 $cli2=load2$
 320 *KEY0 PAGE=&1800|M LOAD"NINJA"|M EN
D|M OLD|M 300CALL&3000|M RUN|F|M
 330 MODE 7
 340 PRINT "Please insert Last Ninja dis
c and press any key...";:*FX 15,0
 350 A%=GET:VDU 13,10,21:*FX 138,0,128
 360 END
```

A sort of giant clanger

Regular readers may remember the November 1990 column, in which I gave details of a tip for Sabre Wulf from Simon Karger and Jeremy Flax that enables you to make the guard outside the final room disappear.

I said at the time that I couldn't get the tip to work for me, but that I was throwing it open to any reader who may have more success.

Well, the problem was actually of my own making, because I misunderstood the point that Simon and Jeremy were making. The guards of which they spoke were the cyan jungle natives, not the angry giant that guards the small house two map squares above your start position.

The natives appear at random when you enter a new location and are the only creatures generated in this way that you cannot kill with your sabre.

To make them disappear, as Simon and Jeremy say, you should go back to the screen from which you came – as long as all available exits are not blocked by these natives – and wait until the new creatures have appeared on that screen.

As soon as they have done so, return to the previous screen and this time you will probably find that you will not get a native blocking your way forward.

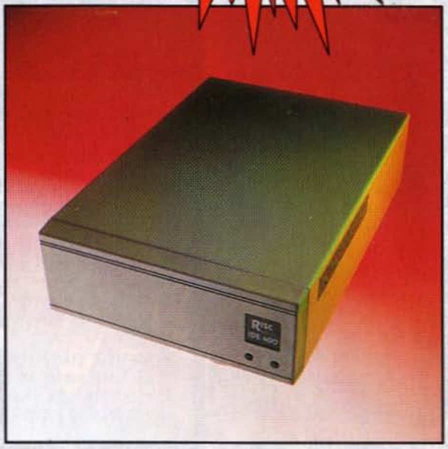
Sorry to anyone inconvenienced by my misunderstanding.

IDE Hard Disc Upgrades
for the Archimedes & A3000

SPECIAL OFFER
A3000 Internal Drive
Now Only
£195 + Vat

What is IDE?

IDE (Integrated Drive Electronics) is the latest interface standard for connecting hard drives to personal computers and is used in the new Acorn A5000. Our drives all feature a memory cache system, which when coupled with our custom designed 16 bit interface give very fast access times indeed. Typically 50% faster than the Acorn ST506 drives used on the 300 & 400/1 ranges.



What drive options are available?

Archimedes 310, 440, 400/1 and 540.

Drive sizes currently available are 42, 89 and 105 Mbyte with a typical access time of 28ms for the 42Mb models and less than 20ms for the others.

These 3.5" drives are available as either internal or external units, and use our high speed 16 bit IDE interface card that fits in your podule backplane. External drives are attractively cased to match the computer and have their own internal power supply and fan. One interface card may be used to control both an internal and an external drive.

A3000

Our A3000 external solutions consist of the 16 bit IDE podule in a special metal podule box which fits to the back of your A3000 (under the monitor stand). Drive sizes are 42 Mb, 89 Mb or 105 Mb. We are also able to offer internal IDE drives for the A3000 that fit into the internal podule slot. These special 2.5" drives are available in 20, 42 and 89 Mb formats and have access times of 23ms.

Hard Cards

These are 2.5 inch hard drives mounted onto our interface card for fitting into a standard podule slot in a 310, 400 or 540 computer. They are particularly useful when you already have one internal hard drive and want another.

What does the future hold?

IDE is a relatively new interface standard, but has already gained massive support. It has been endorsed by Acorn in the A5000 and is clearly the way ahead for users of Acorn systems. The next few months will see drives up to 400Mbyte, with larger capacities, and devices such as tape-streamers following very soon. The future for IDE is very bright indeed.

Quality

You may have total confidence in our products. Only the best drives from recognised manufacturers are used, Conner, Seagate, NEC etc. All drive kits are supplied with full fitting instructions and a user guide to ensure that you will have no problems at all. Our interface conforms fully with Acorn's IDEFS specification.

Money Back Guarantee

If for any reason you are dissatisfied with one of these products we offer a full 14 days money back no quibble guarantee.

	Internal		*External*	
Description	***Stock Code***	***Price***	***Stock Code***	***Price***
Archimedes 42 Mb	*5251*	*£259.00*	*5261*	*£349.00*
Archimedes 89 Mb	*5252*	*£379.00*	*5262*	*£469.00*
Archimedes 105 Mb	*5253*	*£459.00*	*5263*	*£549.00*
Hard Card 42 Mb	*5291*	*£495.00*		
Hard Card 89 Mb	*5292*	*£695.00*		
A3000 20 Mb	*5270*	*£195.00*	*N/A*	------
A3000 42 Mb	*5271*	*£495.00*	*5281*	*£359.00*
A3000 89 Mb	*5272*	*£695.00*	*5282*	*£479.00*
A3000 105 Mb	*N/A*	------	*5283*	*£559.00*

All prices include High Speed IDE Drive Interface, Manual & Fitting Instructions.

All prices are Ex VAT

Available from your local dealer, or directly from RISC Developments (please add £9 carriage).

RISC developments

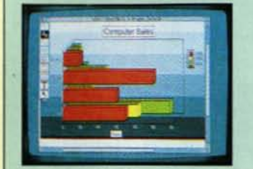
RISC Developments Ltd is an associated company of BEEBUG Ltd.

RISC Developments Ltd, 117 Hatfield Road, St. Albans, Herts AL1 4JS
Tel. (0727) 40303 Fax. (0727) 860263

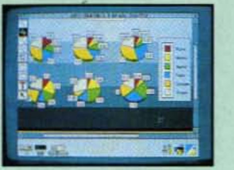
This advertisement was produced entirely with Ovation DTP from BEEBUG

ChartWell

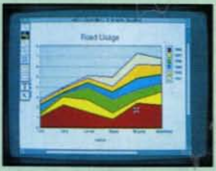
A sophisticated Graph and Chart Package



ChartWell offers **24 different graph types** including:
horizontal and vertical bar charts,
line graphs,
scatter charts,
polar plots,
and pie charts.

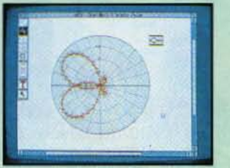


ChartWell gives you **complete user control** over:
choice of colour,
data point styles,
bar widths and spacing,
use of titles and labels,
legends to provide a key,
graduated and shaded backgrounds,
scales and tick marks, etc.



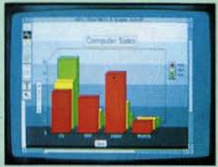
A single chart or graph can **display up to 6 different data sets**, including up to six pie charts in a single display.

An added option is proportional sizing, segment withdrawal in pie charts, labelling etc.



Data can be imported from other applications, such as spreadsheets, databases, or created with a suitable editor as a text file. **Output** is in standard Draw format for import into Draw or any other application, DTP for example.

ChartWell allows a variety of **display options :**
flat or 3D bar and pie charts,
user choice of angle for 3D pie chart display,
clustered, stacked or layered bar charts,
scatter graphs with choice of curve fitting techniques, regression lines and correlation coefficients, and use of error bars,
line graphs with choice of normal, cumulative area or stacked area displays.



Flexibility
ChartWell allows you to select only part of the data for display.

You can also change the order of display - a useful feature when creating bar charts - data can be arranged in ascending order so that long bars will not overlap shorter ones.

Use of **'style sheets'** allows a set of options to be saved with data for future reference. User choice of start-up options.

Quality Software at Affordable Prices

DeskEdit

An advanced all-purpose multi-tasking Text Editor for the Archimedes, with special features tailored for use with plain text, Basic and C source.

General editing features

Three special Find and Replace modes - from Simple to Power Search
Additional Quick-Search mode for rapid retrieval
Text macros to insert user strings in both text and source code
Special Undelete buffer for moving text around, in addition to Edit-style Undo/Redo
Dedicated markers and position finders for finding your way around large files.
Clipboard, providing an alternative way to move text around

Plus

On screen Help - full documentation in a scrollable window
Instant file info feature, and current directory setter
Caret flash controller for DeskEdit and other applications
Customised user commands to open directories, run other applications and launch Obey files
Numerous keyboard shortcuts including date and filename insertion, changing case, moving windows to the front or back of the stack, parking the mouse pointer, inserting printer codes etc.

Printout

Fast text printout including style codes for bold, underline, italics, page breaks etc.
Special text printing options with headers, footers, page numbering and style codes.
Useful Preview mode.
A Statistics option with a summary of aspects of the text to be printed.

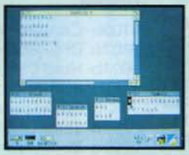
Language specific features:

DeskEdit will format word-wrapped **plain text** as you type.
Basic files will automatically be detokenised, when you drag them to the icon, and loaded into DeskEdit ready for editing. F3 will retokenise and save them after editing.
Function and Procedure browser.
Automatic line number insertion.
Special **C language** features.
Auto indent facility combined with automatic generation of opening braces streamlines source code entry.
C function browser and synthax checker

from RISC Developments

PolyGlot

A foreign language character generator for the Archimedes



Open a window for any specified language, and this will display all characters which are impossible or difficult to obtain from the keyboard: for example, accented characters in French,or umlauted characters in German. Select any of these characters with the mouse and it will automatically be inserted into your document.

Why PolyGlot is Better than any Other System

You can see all the characters you need in a window in both upper and lower case; you do not need keyboard overlays.
You do not need to set your keyboard to a foreign standard to obtain appropriate foreign characters.
You can work with different languages or alternative character sets simultaneously.
You can use any character set, any alphabet and even scientific characters (provided your fonts support these).
PolyGlot provides comprehensive printing support.

PolyGlot is Fully Customisable

You can tailor the application to your own specific requirements and include only those languages and characters, which you actually need.
You can use PolyGlot as a simple way of selecting from any set of characters, not just those which relate to a specific language. For example, you could have a PolyGlot window open for currency signs or other symbols.
You can also customise PolyGlot to use any of the available alphabets within your Archimedes. For this you must have suitable outline fonts or printers which support alphabets other than the standard Latin1.
Ideal for education where the package can be readily tailored to suit any needs of both individuals and classes.

Wimp Programmer's Toolkit

Twelve powerful multi-tasking utilities - an essential aid to any programmer

Wimp Debugger - debug Wimp-based programs while testing and running them.
Spyglass - displays the contents of memory allocated to any task currently running.
Template Editor - Acorn's FormEd for designing windows.
Template File Browser- view the contents of a template file.
Application Shell Generator utility for creating application directories, Obey files and their sprites.
Menu Editor for creating and editing Wimp menu structures.
WimpAid allows pointer, window and icon parameters to be dynamically displayed on screen.
Iconbar Shell Generator - create simple multi-tasking programs
Desktop File Loader allows you to load a program from the Desktop, rather than run it.
Icon Flag Generator calculates the value of icon flags.
Wimp Message Monitor - monitors the Wimp polling system.
EasyWimp provides a ready-made Wimp application shell to be used for creation of single-window applications.

Software Prices

Chartwell	**£29.95**	Code **PCHWa**
DeskEdit	**£24.95**	Code **PEDTa**
Polyglot	**£19.95**	Code **PGLTa**
Wimp Programmer's Toolkit	**£19.95**	Code **PWPTa**

Other Products

Arcscan III reference finder	**£18.95**	Code **PAS3a**
All-purpose reference finder for books, magazines and manuals		
Arcscan Library Disc	**£ 9.95**	Code **PAL1a**
Index for Acorn User and Micro User from Jan 1987 to date		
Desktop Applications disc	**£14.90**	Code **PDA1a**
ArcOmnibus Games disc	**£14.90**	Code **PAOMa**
File Handling for All book	**£ 9.95**	Code **BKO2b**
Disc supporting the book	**£ 4.75**	Code **BKO3a**

RISC *developments Ltd*

117 Hatfield Road,
St. Albans, Herts AL1 4JS
Tel. (0727) 40303
Fax. (0727) 860263

The Archimedes Specialists
Competitive Pricing

BEEBUG

The Archimedes Specialists
Superb Service

Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...

A3000

0255g	A3000 Entry System	599.00
0256g	A3000 Colour System	798.95
0220g	Learning Curve Mk.2 Entry	637.45
0221g	Learning Curve Mk.2 Colour	850.21

A5000 Computers

0211g	A5000 + HD + MSync	1499.00
0213g	A5000 LC Colour	1531.06
0214g	A5000 LC Colour + printer	1765.96

Archimedes Computers

0194g	540/1 Entry System	2495.00
0195g	540/1 Colour System	2694.00

The official Acorn Colour Monitor is supplied with all Acorn Colour Systems as we believe the quality is superior to other, cheaper monitors.

Memory Upgrades

0278d	1Mb RAM upgrade for A400	39.00
0267e	A5000 2Mb Upgrade	129.00
0133d	A3000 1Mb RAM Card	59.00
0130d	A3000 1Mb Upgradeable	79.00
0131e	A3000 3Mb RAM (Beebug)	179.00

Archimedes Upgrades

0784d	A410/1 5.25" disc buffer	34.95
0269d	Backplane 2-way (Acorn)	37.00
0768d	Backplane 4-way inc fan (Ifel)	55.00
0817b	VIDC Enhancer (Atomwide)	29.95

Archimedes Expansion Cards

0271d	I/O Podule (Acorn)	79.95
0273d	MIDI Podule (Acorn)	75.95
0874g	Multipod Professional I/O	115.95

Archimedes / A3000 General Add-Ons

0716b	Archimedes Dust Cover	12.21
0832b	Keyboard Extension Lead	6.77
0895b	PC Emulator v1.7 (Acorn)	94.00
0794b	Spiral Keystrip Holder	2.56
5441g	Zy-Fi Amplified Speakers	34.00

A3000 Add-Ons

0712b	A3000 Keyboard Dust Cover	5.62
0801e	Monitor Plinth (Acorn)	29.00
0277a	Serial Chips *	19.00

A3000 Expansion Cards

0234d	BBC A/D + User Port (Morley)	69.00
0135d	Disc Drive Interface (B'bug)	39.95
0238d	MIDI + I/O Podule (Acorn)	46.53
0137c	SCSI upgrade for code 0135	99.00

Joysticks and Mices

0723c	Deltacat Joysticks	24.74
0722b	Joystick Controller (Serial Port)	22.00
4084c	Deluxe Quickshot Joystick	10.20
0696a	Furry Mouse Cover	6.77
0685b	Mouse House	2.60
0789b	Mouse Mat (blue)	3.36
0788b	Mouse Mat (red)	3.36

Wordprocessors

0899b	1st Word Plus Version II	72.00
1170b	Easiword (Minerva)	18.95
5507c	Easiwriter (Icon Systems)	146.81
1959b	Pendown (Logotron)	52.95

Spreadsheets

1998b	Schema (Clares)	96.95
0990c	Pipedream 4 (Colton)	POA
0931b	Sigmasheet (Minerva)	37.80

DeskTop Publishing

1113c	Impression II (CC)	130.00
1115b	Impression Junior (CC)	75.00
0108b	Ovation (Beebug)	99.00

Desktop Publishing Tools

5440b	Equasor (CC)	47.95
1976b	FontFX (Datastore)	10.00
5550b	Font Starter Pack (EFF)	49.00
5510b	Midnight Tracer	52.13
0111b	Outline Font Pack (Risc Dev.)	47.39
0092b	TypeStudio (RISC Dev.)	45.00

Integrated Packages

5427b	Desktop Office (Minerva)	76.50
0990c	Pipedream 4 (Colton)	POA

Databases

1992c	Flexifile (Minerva)	89.10
0100b	Masterfile II (Risc Dev)	19.13
0989d	Multistore (Minerva)	179.10
1007c	PinPoint (Logotron)	75.00
0921c	System Delta Plus II (Minerva)	49.95

Information Managers

0910b	Knowledge Organiser (Clares)	45.00
5447b	Squirrel (Digital Services)	129.00
5471b	Magpie (Logotron)	54.00

Chocks Away Extra Missions

Arcade Games

5468b	Air Supremacy	19.95
1930b	Apocalypse (4th Dimension)	19.95
0997b	Arcade Soccer	17.00
5450b	Ballarena	16.98
5455b	Blowpipe (Eclipse)	14.00
1978b	Break 147 (4th Dimension)	20.17
5579b	Cataclysm (4thD)	19.53
1995b	Chocks Away (4thD)	20.17
5573b	Chocks Away Compendium	31.00
5577b	Chuck Rock (Krisalis)	19.95
1187b	Conquerer (Superior)	19.53
0952b	Corruption	16.95
1979b	Drop Ship (4th Dimension)	16.13
5476b	Elite (Hybrid)	34.00
5536b	Enter the Realm (4thD)	21.23

All prices exclude VAT

1070b	E-Type (4thDimension)	16.13
1058b	E-Type Designer (4th Dim.)	14.43
0999b	E-Type Extra 100 miles (4thD)	14.43
1929b	Fireball 2 (CIS)	21.23
5567b	Grevious Bodily 'ARM (4thD)	19.53
5725b	Holed Out Compendium	19.53
1984b	Hostages (Superior)	16.13
1901b	Inertia (4thD)	17.35
1930b	Jahangir Khan Squash	19.95
5546b	Lemmings (Krisalis)	19.95
5489b	Magnetic Scrolls Collection	29.75
1902b	Man at Arms (4th Dimension)	16.13
1987b	Manchester United	19.95
5568b	Manchester United Europe	19.95
5578b	Mig-29m Super Fulcrum	38.29
1903b	Nevryon (4th Dimension)	16.13
5569b	Pandora's Box (4thD)	19.53
1904b	Provocator	16.98
1999b	Pysanki (4th Dimension)	16.48
1994b	Real McCoy (4th Dimension)	25.49
5487b	Spitfire Fury (4thD)	19.53
1986b	Superior Golf & Construction	16.48
5452b	Superpool (4th Dimension)	16.13
0998b	The Olympics (4th Dimension)	16.13
1981b	The Pawn	20.65
0963b	Thundermonks (Minerva)	12.35
0994b	U.I.M. (4th Dimension)	24.74
5453b	Wimp Game (4th Dimension)	16.13
5456b	Worldscape (Eclipse)	16.13
5488b	X-Fire (4thD)	19.53
1179b	Zarch (Superior)	16.13
1980b	Zelanites	21.23

Languages

0946c	Desktop Assembler (Acorn)	138.00
0945c	Desktop C (Acorn)	199.00

Music & MIDI

0995d	!Inspiration (Pandora)	199.00
1925b	Rhapsody II (Clares)	51.02
5457b	Tracker (Serial Port)	42.51

Utilities

1106b	Compression (CC)	49.00
0102a	DFS Reader (Beebug)	9.06
0094b	Hard Disc Companion rel. 2	45.00
5445b	Investigator II (Serial Port)	24.30
1990b	PC Access (Minerva)	17.10
0796b	Serial Link Disc (Beebug)	15.79
0090a	Beebug Star Printer Driver	15.00

Art Packages

1942b	Arctist (4thD)	20.17
1107b	ArtWorks (CC)	POA
0962b	Atelier (Minerva)	76.50
5492b	PrimeArt (Minerva)	71.10
0937c	Pro-Artisan (Clares)	79.95
5472c	Revelation (Logotron)	76.00
5509c	Render Bender II (Clares)	114.89

BEEBUG Ltd, 117 Hatfield Road, St Albans, Herts AL1 4JS
Telephone: (0727) 40303 Fax: (0727) 860263

The Archimedes Specialists
Competitive Pricing

BEEBUG

The Archimedes Specialists
Superb Service

Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...Beebug Computers...

Speech Production Software

5519b	Speech! (Superior)	16.13
5576b	Articulate (4thD)	20.17

Presentation Graphics

0932b	GammaPlot (Minerva)	32.00
0912b	Graph Box inc Hotlink (Min.)	62.10
1090b	Graphbox Professional	109.00
0908b	Presenter II inc Hotlink (Lindis)	46.95

Educational Software

5724b	Converta-Key (Triple R)	16.12
5725b	Data Word (Triple R)	16.12
1008b	Desk Top Stories (Resource)	32.95
0935b	Dread Dragon Droom	25.95
5705b	Fun School III (5-7 years)	21.27
5706b	Fun School III (7+ years)	21.27
5704b	Fun School III (under 5)	21.27
5726b	Money Matters (Triple R)	16.12
5727b	Picture Book (Triple R)	16.12
5729b	Target Maths (Triple R)	16.12

Books

There is no VAT to pay on books

1252d	A5000 Tech Ref Manual	65.00
1211b	Arch Assembly Language	14.95
1246b	Archimedes First Steps	9.95
1243c	Arch Operating System	14.95
1208b	Basic V : A Dabhand Guide	9.95
1230b	Desktop Dev.Environ. Guide	25.00
1245e	RISCOS Prog. Ref. Manual	79.00
1225b	RISC OS Style Guide	9.95
1207c	30 Hour Basic	12.95

Communications

3110g	Amstrad SM2400 Modem	189.00
0779g	Linnet Modem	119.11
0101c	Hearsay II Comms Software	75.00

Monitors

0189g	Acorn Colour Monitor	199.95
0527g	Microvitec CUB3000	195.70
0506g	Taxan 775 MultiSync	389.00

Beebug Blank Discs (All 3.5")

Guaranteed for life

0375b	1Mb - 10 in Library case	6.77
0676b	1Mb - 40 in Lockable box	27.19
0674b	Hi-Density 1.6mb - 10 in Case	15.28

BEEBUG
DISCS
HD
High Density 3.5"
Guaranteed for life

JOYSTICK CONTROLLERS

Connect an Amiga or Atari Joystick such as the Deluxe Quickshot to your Archimedes. Simply plugs on to the in Centronics printer port of your Archimedes.

Joystick Controller (code 0722b) £22.00
Quickshot Turbo Joystick (code 4084c) £10.20

Matrix Printers

0379g	Epson LQ400	168.00
0329g	Epson LQ550	238.26
0327g	Epson LQ860	564.00
0378g	Epson LX400	122.00
0322g	Epson LX850	178.60
0382g	Epson LQ870	430.00
0471g	Star LC20	119.95
0337g	Star LC24-10	195.00
0436g	Star LC200	185.00
0404g	Star LC24-200 Mono	228.95
0402g	Star LC24-200 Colour	264.95
0477g	Star ZA-200	282.00
0478g	Star ZA-250	354.00
0472g	Star XB24-200	354.00
0473g	Star XB24-250	426.00

Inkjet Printers

0430g	Canon BJ-10ex (Black case)	215.00
0431g	Canon BJ-10ex (White case)	215.00
0464g	HP DeskJet 500	350.00
0442g	StarJet SJ-48	209.00

Laser Printers

0496g	Laser Direct Qume (CC)	949.00
7501g	Laser Direct Hi-Res 4	950.00
7540g	Star LaserPrinter 4	699.00
7541g	Star StarScript 4	839.00
0480g	Star LaserPrinter 8 II	1050.00
0483g	Star StarScript 8	1299.00

Amstrad SM2400 Modem plus the new state-of-the-art Hearsay II Software

The highly acclaimed Amstrad SM2400 modem has been re-released by Amstrad. It is a full feature Hayes compatible modem operating at speed of up to 2400 baud.

Hearsay II is the brand new RISC OS compliant communications package for the Archimedes.

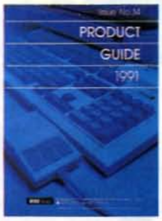
The package comprises the Amstrad SM2400 modem, Hearsay II and a custom cable to connect the modem to the computer.

Stock Code 3114g **Price £189.00**

All prices exclude VAT

Beebug is an Acorn Premier Dealer and has been involved with Acorn products for over 9 years. We pride ourselves on our after sales service. As one of Acorn's largest retailers you can rely on us for support for many years to come.

If you are interested in buying an Acorn computer, or if you already own one and wish for a comprehensive selection of the best products available why not have a look in our glossy 72-page full colour product guide.



Phone or write now for your free copy.

BEEBUG CHRISTMAS OPEN DAY

Beebug is staging another of its popular open days at its large premises in St Albans. A number of visiting companies, including Acorn will be demonstrating their latest products. You could even pick up a bargain for Chrismas!

Sunday 8th December 1991
10am - 4pm

BEEBUG SHOWROOM

Our large modern showroom in St Albans has a wide range of Acorn related products on demonstration. Friendly, helpful staff will be pleased to discuss your requirements with you.

Opening Hours:
Monday-Saturday 9.00am - 6.00pm
Late night Thursday to 8.00pm

CHRISTMAS ORDERING

As with previous years Beebug will do its utmost to fulfil all orders before Christmas. All orders received up to Thursday the 19th December will be dispatched in time for Christmas (subject to items being in stock and postal services).

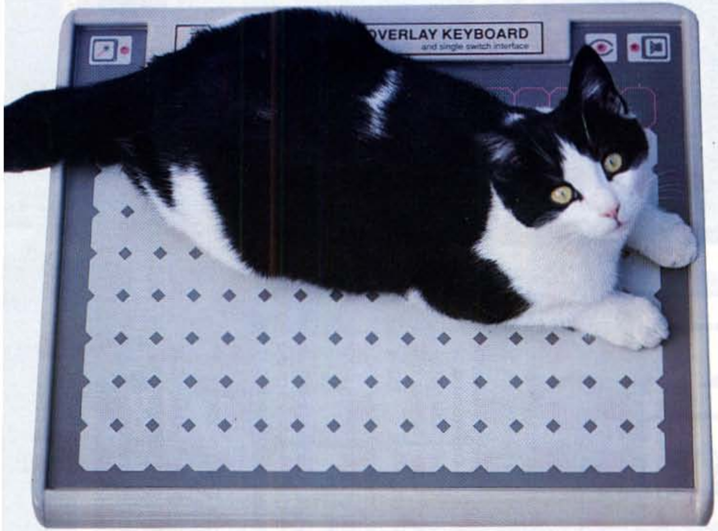
ORDERING INFORMATION

All prices exclude VAT. We accept Access Visa, Switch, Connect cards and cheques drawn on UK Banks. Orders from education and PLC's are most welcome. 80% of all orders are dispatched within 24 hours, but allow up to 28 days for goods which are out of stock. An acknowledgement of order is sent by return if goods are out of stock. All prices and specifications subject to change without notice. E&OE

Product Code	UK, BFPO & Channel Islands *(P&P)*.
a	*£1.00*
b	*£2.00*
c	*£3.10*
d	*£3.60*
e	*£6.00*
g	*£9.00 Courier - mainland UK only*

BEEBUG Ltd, 117 Hatfield Road, St Albans, Herts AL1 4JS
Telephone: (0727) 40303 Fax: (0727) 860263

*A new concept in A3 Overlay Keyboards for £120 **



A3 overlay keyboard

- ☐ ***Built to Northwest SEMERC and Northern ACE specifications***
- ☐ ***Compatible with existing overlay keyboard software***
- ☐ ***Additional 16 protected function keys for future programs***
- ☐ ***Robust and lightweight plastic moulded case***
- ☐ ***Parallel connections for BBC Master or user port on the A3000/ Archimedes or RM Nimbus***
- ☐ ***Visual and audible indication that a key has been pressed***

and single switch interface box

- ☐ ***Standard 6mm switch jack plugs straight into the edge of the Overlay keyboard***
- ☐ ***Single switch access to superb early learning software***
- ☐ ***Replaces switch interface box for single switch use***
- ☐ ***Inserting switch jack disables Overlay keyboard***

plus

- ☐ ***Overlay Keyboard Book by Jenny Taylor & Martin Littler***
- ☐ ***Software and switch discounts worth up to £120***

Northwest
SEMERC
(Oldham)

****Price - £120 plus £5.00 postage and packing plus VAT. Total £146.88. Cheques to be marked "Oldham MBC (SEMERC)"***

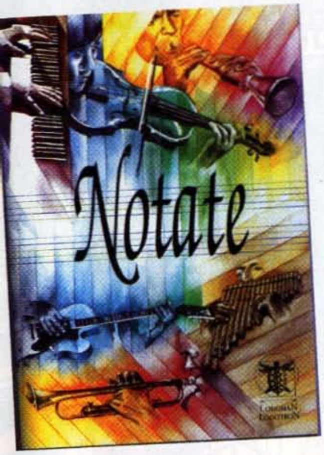
Northwest SEMERC, Fitton Hill CDC, Rosary Road, Oldham OL8 2QE (061 627 4469 Fax 061 627 2381)

EDUCATION Update

Musical terms

ACORN machines have always been popular with musicians and the multitasking Archimedes has made music easier to create. Longman Logotron (0223 425558) have launched a new music composition program called Notate.

Aimed at the classroom it costs £59.00. Regardless of your musical ability you can create scores from the simplest melody line, up to eight parts. The power of the Archimedes enables Notate to render any stave of the score in a range of voices, including sampled sounds.



Though suitable for the inexperienced encouraging them to experiment, the variety of features makes it a powerful tool for the more competent. There is a wide range of time and key signatures with control over tempo and volume, including the ability to use accidentals and repeats, as well as automatic checking of note length relative to the bar space remaining.

Add to these editing facilities – cut, copy, move. delete and so on – plus the ability to play via Midi and Notate sounds very promising indeed.

More sensitivity

Following on from last's month announcement from Oldham Semerc (061-627 4469) of their Overlay Keyboard for the BBC and Master. Semerc will be showing the prototype of an expanded Archimedes keyboard at the BETT show.

Designed specifically for children with Special Needs, it consists of an enlarged qwerty keyboard made of steel. Children with poor motor control can rest their hands on the case without the frustrations caused by unwanted key presses. Each key is accessed through the hole above it.

On the Overlay Keyboard front there is a new software package, Ghost Stories. Featuring blobs, spooks and skeletons they will all make their debut at the BETT show, as will the new modern language version of My World for the Archimedes and World Puzzle from Jeff Bevan.

Doomsday debut

WAS your school one of the many who bought the BBC Domesday Interactive Video System? When was the last time you used it? Unfortunately, in many schools this excellent system has not been used to its full extent.

To the rescue come Stafford based, Panda Discs. Students with moderate learning difficulties at Dudley College in the West Midlands, have been using a version of Panda's Touch and Learn package.

It allows them to access all the still frames on the Domesday and compatible discs, to build up stories, databases and quizzes. They overlay their own text on the pictures which can then be passed to a wordprocessor for printing.

So if you have a BBC Micro Domesday Interactive Video System and a concept keyboard, Panda's package will only cost you £9.95 for an 80 track disc and documentation. Panda Discs, Four Seasons, Tinkers Lane, Brewood, Stafford ST19 9DE.

Et maintenant . . .

OF interest to Genesis users are the new Bonjour de France packages produced in association with Hampshire LEA, Portsmouth TVEI and Cliffdale Secondary School. Oak Solutions (0274 620423) have taken the National Curriculum Working Party's report on Modern Language to create a program to cover levels one to four in each of the four attainment targets.

Bonjour de France will be a modular package covering: Ma Ville, Mon École, Ma Famille and Mes Amis. By simulating a wide range of situations, children are encouraged to work at their own pace while developing an awareness of the form and structure of French, as well as exploring sequencing words, matching, jumbling, sorting and completing gaps and focus on how language worth. In addition they will find how words relate to each other and how ideas are organised.

Bonjour de France also helps with reading, writing and presenting material attractively. Individuals are encouraged to rake the responsibility for their own learning by planning, collaborating, making and testing hypotheses, summarising and agreeing decisions.

Applications contain text, visual stimuli and sound – authentic French speech.

There is a great deal of support material available too. For instance Ma Ville alone consists of nine discs, teachers guide and 100+ worksheets for the £95 site licence.

Oops

THERE has been some confusion over the pricing of NCPlanner and NCBase from New Era Software (0283 812818). For £25 you can buy both NCPlanner and NCBase while an extra £15 will cover all the updates. New Era can be reached at: 204 High Street, Woodville, South Derbyshire DE11 7DT.

Fun Freddy

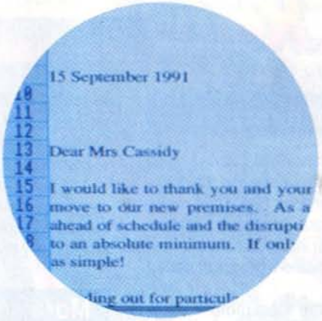
IF you had ventured into Macclesfield General Hospital in Cheshire in November you could have come across a 6ft green frog.

Part of the promotion for Fun School 4 – due on the Archimedes in February – Freddy the Frog presented young patients with their own versions of the latest in the educational series from Europress Software (0625 859333). Fun Schools 2 and 3 are still available for the Electron, BBC and Archimedes.

Fun School 4 sees the departure of Robbie the Robot and the debut of Sammy the Spy. Following the familiar format, Teddy returns in Reeboks and baseball cap with six new educational programs covering art, maths, words and even karaoke.

Freddy, on the other hand, takes on sequencing, maths, word sorting and typing. This leaves Sammy to the 8 to 11 year olds, zipping around the world in games covering geography, history, maths, general knowledge and timetabling.

All programs come with cleverly designed animated rewards to encourage children to get the answers right. For instance, in the Opposites game Freddy belly-flops from a diving board into the pool – or sometimes the diving board will snap and he plunges into the water.



15 September 1991

Dear Mrs Cassidy

I would like to thank you and your
move to our new premises. As a
ahead of schedule and the disrupti
to an absolute minimum. If onl
as simple!

ling out for particul

PIPEDREAM4

Imagine a flexible word processor in which you can use fonts and pictures to give stunning presentation to your letters and reports. And a 93,000 word spelling checker and user dictionaries for letter-perfect writing.

Imagine the most powerful spreadsheet package on the Archimedes. Background recalculation so you carry on working while it computes. 160 built-in functions, plus a programming language for your own custom functions. Arrays within slots for easy manipulation of structured data.

Imagine dynamic charts straight from your data. Multiple scales to compare trends. Personalised Penguin Graphics with bars filled by your own draw files to dazzle your friends and colleagues.

Imagine a fast and compact database package with full sorting, searching and selection criteria. With links straight to the word processor for printing mail-shots and labels.

Imagine user-friendly features such as configurable menus, template files to start new documents from, and automatic fitting of column widths to the data.

PipeDream 4

the works

Free your imagination.

RRP £196+VAT. Call for education prices and site licences. PipeDream 4 is ideal for any Archimedes, A3000 or A5000 with 2MB RAM or more.

COLTON software

Coltonsoft Limited
2 Signet Court
Swanns Road
Cambridge
CB5 8LA
Tel: (0223) 311881
Fax: (0223) 312010

For a free brochure, complete and return this coupon.

Name ____________________

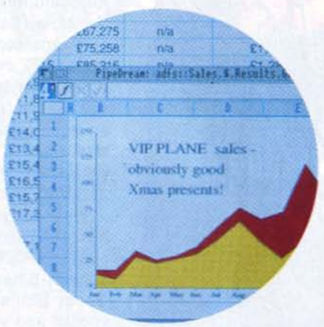
Address ____________________

____

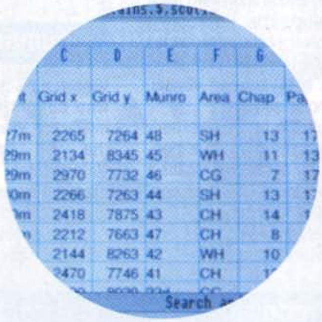
____

____________________ Postcode ________

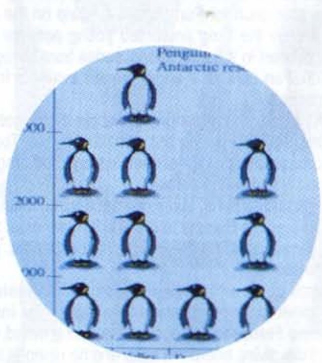
MU1

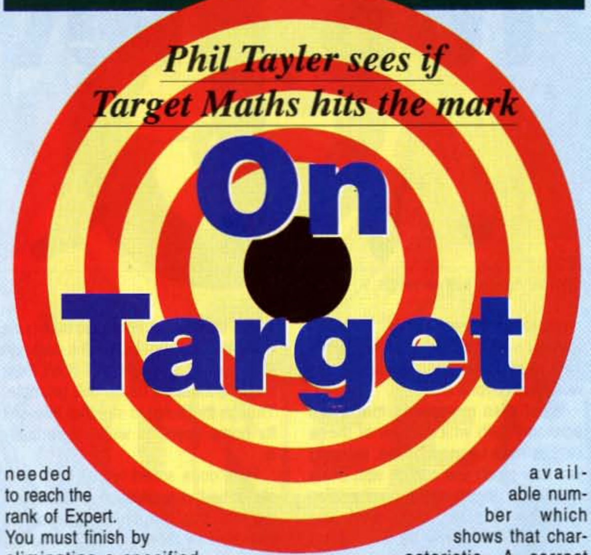


PipeDream adfs::Sales.$.Results
VIP PLANE sales - obviously good Xmas presents!



Grid x	Grid y	Munro	Area	Chap
2265	7264	48	SH	13
2134	8345	45	WH	11
2970	7732	46	CG	7
2266	7263	44	SH	13
2418	7875	43	CH	14
2212	7663	47	CH	8
2144	8263	42	WH	10
2470	7746	41	CH	[illegible]





On Target

Phil Tayler sees if Target Maths hits the mark

Product: Target Maths
Price: £19.95 (Archimedes) £14.95 (BBC 5.25in) £15.95 (Master 3.5in) £12.95 (tape)
Supplier: Triple R, 1 Percy Street, Sheffield S3 8AU.
Tel: 0742 100661
Requirements: Whole Acorn range.

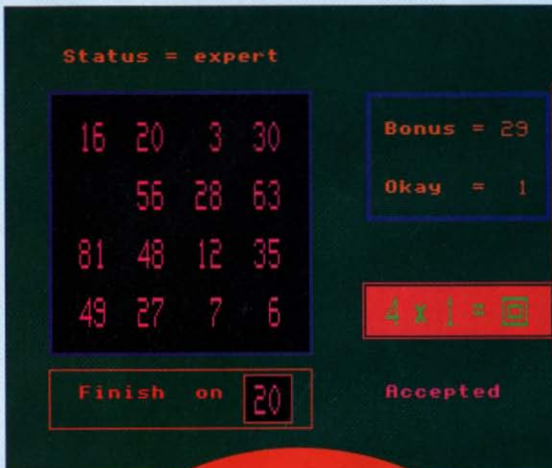
THE name Triple R has the kind of ring to it what would appeal to my parents, who probably remember their own schooldays with a mixture of apprehension and nostalgia. This suite of four programs will undoubtedly appeal to parents today who want to give their children that extra edge. It may also find favour with teachers who'll appreciate its considerable educational value, National Curriculum cross-referencing and clear colourful screens.

As the title implies, all the programs are linked to Attainment Targets in the maths documents. Information can be accessed at certain points when the letter I appears. Then not only is the Attainment Target shown, but also the level the child is currently working towards.

On to the programs. First comes **Eliminator** which is a frustrating exercise, compounded by the need to have just one more go. At the easiest level two digits are displayed with a multiplication sign between them. The idea is to alter one or both of the numbers – the digits cycle through 1 to 9 – until the sum produces one of the 16 numbers displayed in a grid. Press Return and that number is removed from the grid and you are one step closer to finishing.

The trouble is that success brings further problems. Now only one of the two keys used to change the digits will work. This means that some numbers are now more difficult if not impossible to eliminate from the grid. Should you clear the whole grid you'll be acclaimed a Novice.

Only a slight change to the rules is needed to reach the rank of Expert. You must finish by eliminating a specified number within the grid. Moving on to the Genius level requires you to pit yourself against the clock...

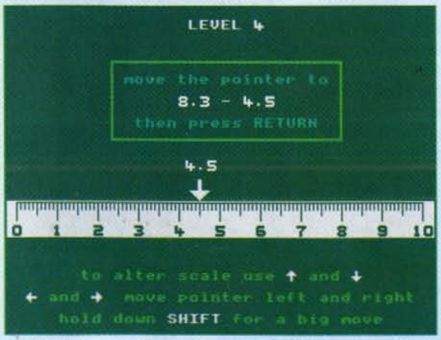


```
Status = expert

16  20   3  30
    56  28  63
81  48  12  35
49  27   7   6

Finish on 20

Bonus = 29
Okay  =  1

4 x 1 =

Accepted
```

The second in the suite is **Number Facts**. Coming in two parts, the first is quite boring. All you have to do is move around 100 squares using the cursor keys. As each number is identified information is revealed: Factors in pairs, odd or even, prime, squares, triangular and so on.

Part two however, uses this information in a two-player game. In turn each player chooses a characteristic, then an available number which shows that characteristic. A correct guess scores points and eliminates that number from the game. An incorrect guess gives points to your opponent. The first past 50 wins.

The basic idea is good as it made my class think about numbers. But I feel it would have been better if half the numbers had been eliminated at the start. By not doing this the same winning pattern can be used by the first player each time.

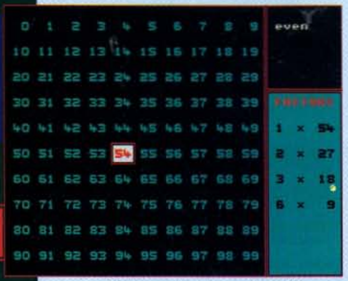


```
LEVEL 4

move the pointer to
8.3 - 4.5
then press RETURN

4.5
 ↓
0  1  2  3  4  5  6  7  8  9  10

to alter scale use ↑ and ↓
← and → move pointer left and right
hold down SHIFT for a big move
```

Scaling factor

Scale Factor is next and is an excellent implementation encouraging the use of decimal notation as well as considering the scale of a line. Startling with Level 1 a straight line is shown with a scale marked on it – similar to a ruler. The pointer must then be moved to a specified point.

Level 2 adds to this by having four scales. Not only must you find the right point but also the right scale – a very original idea. Levels 3 and 4 introduce addition and subtraction and really makes you think. For instance you must identify 2.5 +1.7 or 4.2 - 0.6.



```
 0  1  2  3  4  5  6  7  8  9    even
10 11 12 13 14 15 16 17 18 19
20 21 22 23 24 25 26 27 28 29
30 31 32 33 34 35 36 37 38 39
40 41 42 43 44 45 46 47 48 49   1 x 54
50 51 52 53 54 55 56 57 58 59   2 x 27
60 61 62 63 64 65 66 67 68 69   3 x 18
70 71 72 73 74 75 76 77 78 79   6 x  9
80 81 82 83 84 85 86 87 88 89
90 91 92 93 94 95 96 97 98 99
```

Snakes and ladders with a difference

Slider rather floored me, I must confess. It's basically a game of snakes and ladders but the squares which act as snakes and ladders aren't shown. Instead a mathematical rule identifies them. The problem is that you don't know the rule.

Pressing a key from one to five moves you forward that number of spaces. But you may find yourself moving backwards or progressing more if you land on a special square. A mistake also takes away the highest value of move allowed. So a couple of mistakes can see you having to move forward in small hops. However, lucky squares also restore the choices allowing a faster or more reckless advance.

Screens can be saved for future use and favourite screens can be loaded again so you can try a different strategy. There is also some scope here for work away from the computer.

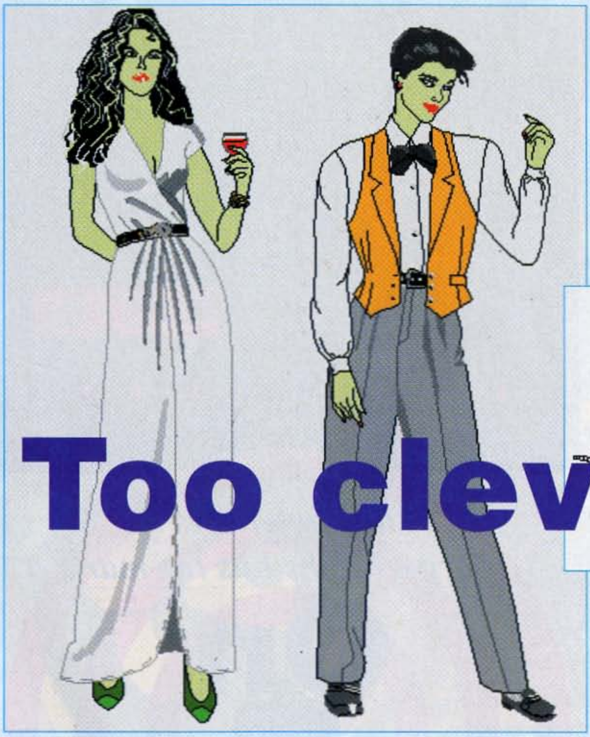
Summing up

All of the programs use the whole screen. But to me the flaw is that they do not make the most the Archimedes. For instance there is no mouse option, the programs don't multi-task and despite being asked if I wanted sound, my machine remained silent throughout.

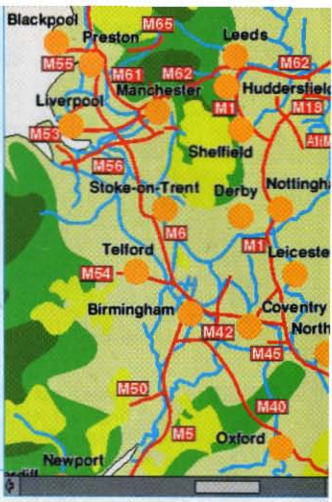
It does mean that the BBC Micro and Archimedes versions are the same and for a BBC Micro or Electron I would heartily recommend Target Maths as a solid workhorse with some flair, originality and a straightforward objective.

Too clever by

Product: smArt
Price: £55 including site licence, (smArt Filer £35 and smArt supplementary discs £16 each)
Supplier: 4Mation, 14, Castle Park Road, Barnstaple, Devon EX32 8PA.
Tel: 0271 25353
Requirements: Risc OS



Try your hand at clothes design



Use overlays for different effects

SMART is quite a simple concept, but one which must have taken a lot of programming to implement. It's a bit like those cut-out dolls there used to be on the back of Bunty – the ones where you had a basic figure on to which you could put a variety of shirts, shorts, pumps, tennis rackets and so on.

smArt takes the idea a great deal further by allowing this to be done on screen with an extremely wide range of art work. The results can be saved to disc for use in DTP or with Draw and Poster. While the basic system lets you to change various parts of a set drawing to produce a wide range of variations, some of the art work suggests routes for interactive learning which I find the most exciting prospect.

The professionally produced manual describes smArt as a Linked Graphics System, which enables graphics to be linked together without any gaps, overlaps, poor fits or floating parts. I had reservations about such art work. This applies to clip art too as it seems to shut you out of the creative process and limit your role to manipulator or processor.

Nuts and bolts

On first glance it would seem that all you can do with smArt is to manipulate what someone else has already produced. No matter how well presented, it doesn't encourage you to draw your own art work. There are, however, two answers to this criticism. The first is that 4Mation have produced smArt Filer which allows you to create smArt files from your own work. The second is the excellent quality of most of the smArt files which should inspire users to create their own.

You might think that professionally produced art work of this kind would intimidate – but I'd disagree. As I examined and tried out the multitude of smArt files, I found myself constantly wondering how various effects had been achieved and thinking: *So that's how it works, I could do that* and *I could take these images and combine them with others to get a completely new picture.* In other words I was inspired to produce my own work rather than thinking such work was beyond me.

What also impresses me is the economy with which some of these images have been produced, showing just how much you can do with Draw without having to use a pixel editing package. This kind of art work and production will surely be the making of the Archimedes as a professional graphics system – especially if 4Mation's documentation is anything to go by.

The manual talks about the examples being useful in their own right. These give a taste of the possibilities and greatly develop conceptions of what you can usefully produce with Draw. Not to mention how much further you could take that by developing such art work into interactive learning applications using simple linked graphics.

The package contains very good manual, a disc with the application, two smArt fonts – Montclair and Tabloid, just in case you don't have any – which greatly improve the text display in smArt files. Plus enough examples of smArt files on a second disc to keep you busy for days.

The application and all files need to be initialised before use. The 24 smArt files on the Files disc take quite a while to initialise but as the package includes the site licence I don't think many education users will grumble. Though that's not to say that this isn't for home users as well – it certainly is.

How does smArt work? Very simply, once the application is loaded on the icon bar, the smArt files can be displayed by dropping them on to the icon or by double-clicking it. The file is displayed in a fixed window which, when resized, automatically adjusts the size of the picture. If the Full view option is switched off the Zoom option or the Page Up, Page Down and Home keys can be used to enlarge or reduce the image.

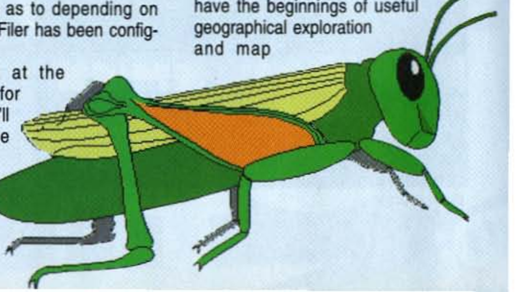
There are two ways of using smArt: Either use the menus available from the Objects option on the main menu, or click on part of the drawing to bring up the menu options on that part of the screen. The way it works varies from file to file as to depending on how the smArt Filer has been configured.

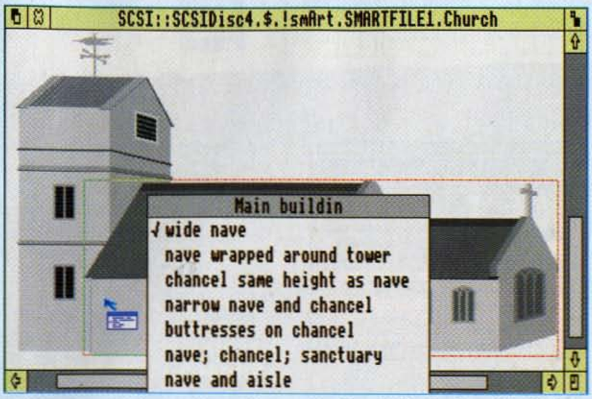
If you look at the Objects menu for the Church you'll see that some options are prefixed with a dot or dots. This indicates the structure of the drawing. The double dotted items are linked to the single dotted sections above, while the single dotted sections are linked to the undotted sections.

For instance the Weather vane is connected to the Tower top, which is connected to the Tower, which is connected to the Main building. If you select the items in the sub-menu with Adjust you'll see the changes without losing the menu. This makes it easier to explore the smArt file which is currently loaded.

Saving is straightforward with work saved to disc or directly into Draw or Poster for further work. Draw files can be ungrouped and worked on in a variety of ways or loaded into Chameleon. This product allows you to change the colour of selected objects *ad infinitum*. Also available from 4Mation, it really opens up the possibilities for very sophisticated colour work which carries through to the printing stage.

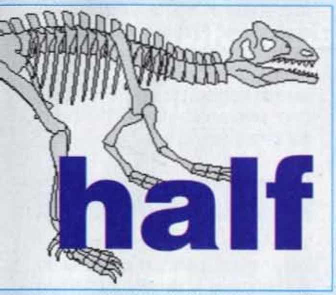
A few differences exist in the way some smArt files operate – the map of the British Isles uses map overlays as well as the details of towns and cities rather than just one or the other. These can be placed on the map simultaneously in any order and have the beginnings of useful geographical exploration and map





Examine the structure of the drawings

half



An example from the support discs

Steve Bruntlett sets out to show just how smArt he and 4Mation have been

making. It also starts to show the different ways in which smArt can start to be used for a wide variety of purposes.

More discs

Not only is there a complete disc of smArt but 4Mation have simultaneously released seven supplementary discs which took me a week to look through and nearly as long to initialise.

Costing £16 each these may seem expensive compared to other clip art. But the colour, the quality and amount of art work you get for your money is good value. Especially when you can use it on more than one machine in an education setting.

The Fashion Pack contains two collections of clothes. One has 32 dresses in a variety of styles and materials. The other 14 items ranging from bikini to sweatshirt, with each item providing an additional choice of shorts, trousers, skirts and so on.

Ten different models are used to show off the collection. I really think we now need a male collection. My two girls complained that some of the tops and bottoms provided in pairs couldn't be used separately. The bikini top couldn't be worn with a skirt for instance – but you can't please everybody.

They also thought some of the fashion was a bit outmoded, especially the sleeveless denim jacket. Neither were they sure about some of the arm positions. Perhaps 4Mation ought to run a competition with the best designs being drawn professionally and produced as a winners pack.

The Heraldry Pack contains a single file which enables thousands of different heraldic designs to be created. A file of notes explaining many heraldic items plus a file of paths for adding your own text, are also provided. This really is excellent stuff.

The quality is superb and the elements of design really well drawn. The InfoCards smArt file provided is an excellent example of how to produce visual and written information. A high resolution monitor really shows off the quality of the art work though this quality is still evident when printed. I could experiment with it all day.

The Leisure Pack consists of 12 files of holiday characters and scenes – useful for illustrating project work. The characters are quite amusing and could be used in comics or as the basis of a series of beach safety posters.

The Faces Pack is the only smArt file of this series in 16 colour mode. However, the quality is every bit as good as the others. There are two files of front and side views offering masses of options. For example, the front view offers 12 face shapes, 41 pairs of eyes, 22 eyebrows, 8 ears, 10 moustaches, 21 mouths, 18 beards, 13 necks, 10 pairs of glasses, 47 hair styles and 14 noses!

I think this has great potential in education in cross curricular terms. My wife is already planning future art lessons round it and it seems that like other examples of smArt this could make an excellent starting point for development work around themes.

The Dinosaurs Pack contains seven dinosaur files and a file of notes on each species. The one I found the most interesting was the skeleton of the Allosaur which is drawn in amazing detail. You should be able to produce some wonderful pre-historic scenes with this set especially if you combine them with some of the smArt work from the Trees and Gardens Pack.

As with all the smArt packs you can either use the smArt work files as programmed or you can export them to Draw or Poster for use in a wide range of work such as paintings, posters and animations. I might have a go at animating some of these dinosaurs when I've some time. I think there are definite possibilities here for a wide variety of supplementary work.

The Trees and Gardens package contains a garden file whose borders and containers may be planted with a variety of different plants and shrubs. The Trees file allows you to grow six different species of tree: Oak, horse chestnut, ash, pine, sycamore and willow. Each has a number of *guests* which can be enlarged to show detail. There is also an option to see detailed diagrams of the foliage and a section through the trunk.

On the ground are several mini-beasts and plants, while below ground you can see the root structures. *Users will have to explore for some time to find all the treasures which are available in this file*, claims the publicity. This is a wonderful piece of programming and is the nearest any of the packs gets to an interactive learning package.

The only thing that lets it down is that the roots are the same for each of the five trees and when you change from tree to tree you always start at the seed stage which looks a bit silly with roots if they're currently selected. I can't really grumble though as the whole file is so well presented and shows what can be done with smArt and the smArt Filer. Individual plants, birds and trees and the like can be used in combination with the packs too.

The Homes package contains four smArt files: Home, room, bedroom and kitchen. All are very well drawn with dozens of objects and features which can be changed. The Kitchen file, for example, contains almost 200 separate items.

The Room file is especially useful as it allows you to build up a room from scratch. Single point perspective aids show you how the realism is achieved. These files are useful and good examples of the quality of image you can achieve with Draw and the effect to which you can put such work. It really makes you want to have a go. There is a range of variations in these packages: Some have information sheets about the use of the smArt provided such as the Heraldry package. Some are programmed to be explored in different ways, such as Dashboard which allows you to design your own car dashboard from scratch. Maze is used to produce a series of mazes based on a blank grid.

smArt Filer

If you think that the smArt system seems limited to produce your own art work, take a look at smArt Filer. Essentially it allows you to produce smArt files from your own drawings. I get the feeling that this is a master stroke on 4Mation's part as you can now produce very different types of work, especially in education. As these products are bought and begin to be used seriously, 4Mation will have a ready made pool of enthusiasts turning out work which they can market.

Indeed they make the offer in the handbook to look at any work produced to see if it's commercially viable. I know people producing clip art already and if that can be extended to smArt files then it has only benefits all round.

The smArt Filer comes with an extremely well produced A5 manual and two discs containing a stripped down version of !smArt. This is used to see how work is progressing. In addition there are examples of work and a disc full of ideas and tutorial examples. I've neither time nor space in this review to do justice to this application but it should open up a whole new sphere of educational computing activity for a lot of people.

The tutorial goes through the production of source files for smArt, covering the linking of drawings, creation of menus and other smArt facilities. It outlines a number of different ideas for smArt files such as books, manuals, stories, animations and workshop resources, and also uses smArt to store compressed sprite files. Possible problems are covered in a useful Appendix.

Summing up

I can highly recommend these three products as they represent what an Archimedes can do. I think that once you've seen some of the smArt files you'll want to buy smArt Filer just so you can start producing your own.

Getting to the point

Frank Jukes explores a new database aimed at education

Product: PinPoint
Price: £99
Supplier: Longman Logotron, 124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS.
Tel: 0223 425558
Requirements: Risc OS

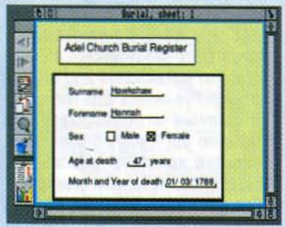
FOR some time I have been in need of a database for use on the Archimedes – it's a nuisance to have to return to my BBC B's database only to transfer reports to the Archimedes. I was pleased, then, to find that Longman Logotron have recently published PinPoint.

Databases have long had a poor reputation as being difficult to use and riddled with jargon. Talk of records and fields is enough to turn off more than a few teachers and pupils. PinPoint, however, is being marketed as a new generation of database.

By turning the emphasis away from the structure to the collection and analysis of information PinPoint reduces technicalities to a minimum.

This change in emphasis is quite obvious throughout the package. Information is collected using questionnaires prepared on the program's DTP-style form designer, analysed using a spreadsheet-style analysis workbench and presented using very powerful, yet easy to use, graphing and presentation tools.

To support this approach the User Guide is far more comprehensive than the average. Running to 173 A4 pages it includes a curriculum guide and a tutorial. But above all it is easy to read and well illustrated.



Adel Church Burial Register

Surname Hawkshaw
Forename Hannah
Sex ☐ Male ☒ Female
Age at death 47 years
Month and Year of death 01/ 03/ 1788

A sample card

Working through the carefully constructed tutorial you are given an excellent overview of the program and its many features. To make the familiarisation process even easier, sample files are provided to show what should have been achieved by the end of each lesson in the tutorial.

Further files include data on UK elections in the 20th century, energy production and information on young smokers. One file even contains data extracted from a burials register. Using these files it's possible to examine the different types of data that can be collected and to explore what can be done with it in terms of analysis and display.

The first step in setting up database is to create a data entry form. While the traditional database asks for names of fields, PinPoint asks for questions which achieve the same end. For instance, providing an answer to the question: *What is your last name?* produces the same outcome as a request to enter data into a field called surname. It's also friendlier and easier to understand.

Using the form editor, an area is dragged out which is where you type your question. You are then asked for a short descriptive name for the field. The rest of the dialogue box is concerned with what type of answer is needed: Numeric, multiple choice, ordered choice, yes/no or date.

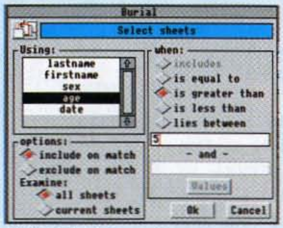
Clicking on the icon next to the relevant type makes the choice. The implications of this choice on the database structure, are dealt with by the program and needn't concern you.

Presentation

Once the rest of the questions and their information have been entered it is easy to improve the presentation of the form. Questions and answer spaces may be lined up using guide lines, a suitable outline font may be substituted for the system font and headings and graphics may be inserted very simply.

If questions have been set up in the wrong order, you can move them by clicking and dragging, though this has the sometimes unwanted effect of altering the internal order of the database. For instance, should the spaces for several lines of address be on the left of a form and spaces for dates and telephone numbers be on the right, completing the form involves alternating between requests for the individual lines of address data and requests for dates and telephone numbers.

Once forms are finished and saved they can be printed to be distributed and completed. Alternatively, you can fill them in on screen. This is quick to do and alterations are easily made. To speed up data entry several pupils can work on separate computers and the separate files merged using PinImport.



Using:
lastname
firstname
sex
age
date

when:
○ includes
○ is equal to
● is greater than
○ is less than
○ lies between
5
- and -

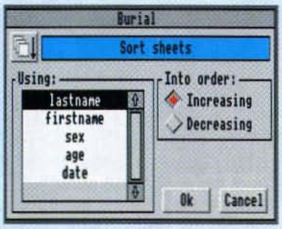
options:
● include on match
○ exclude on match
Examine:
● all sheets
○ current sheets

Limited selection

PinImport is useful for transferring data already held in other databases too, as it'll read Comma Separated Value (CSV) files. These hold data with each field separated from the next by a comma. By dragging the output file on to PinImport, data is transferred faultlessly and speedily. For output from databases which do not use commas as separators PinImport can be set to read alternatives.

Once data has been collected it may be analysed on PinPoint's workbench. Presented in a matrix similar to that of a spreadsheet, the field order can be altered by dragging the headings where you want them. Fields which aren't needed may be removed from the display by dragging their headings off the top of the form. Putting them back is just as simple.

Sorting and searching is amazingly fast. Sorts within sorts are possible as are searches within searches and sorts within searches. To go back a stage needs only a click with Adjust. A range of standard statistics is also available through a separate dialogue window. Results are easily saved to disc or transferred directly into another application.



Using:
lastname
firstname
sex
age
date

Into order:
● Increasing
○ Decreasing

Simple to use sorts

PinPoint has some limitations. The text based output is relatively poor and automatic search and replace options aren't be implemented.

Some databases allow you to manipulate strings to suit particular applications. First names, for example, may be reduced to initial letters before being exported. PinPoint seems to expect the user to rely upon other programs to do this, but this is not always easy or possible.

Graphics

The ability to search for, and automatically replace, particular entries within the database is usually a standard feature. But it does not appear to be present here. It is possible to do this in a roundabout way by exporting data to another package, searching and replacing and then importing the modified data back into PinPoint. But this is a process fraught with problems and is far from ideal.

Graphical, as opposed to textual, reporting is excellent and very powerful. To describe all the options is impossible, but I doubt if anyone will be disappointed.

Pie charts, bar charts, line or scatter graphs, in 2D or 3D and with the option to overlay plots on top of each other, are simple to produce, print and export to other packages. Some very professional results can be obtained by adding arrows, sprite or Draw files as well as text frames using outline fonts and colour.

Summing up

This whole package is well thought out and will be welcome in both primary and high schools. I particularly welcome the change in emphasis from the technicalities of data handling towards the more natural question and answer approach. The ease with which data collection may be organised and implemented is a joy.

My only reservations are concerned with textual output and search and replace facilities. However, PinPoint is likely to have a significant effect on the whole issue of data collection and analysis in the National Curriculum and beyond. It deserves to succeed.

FONTASY

- Produce *professional* quality graphics from outline fonts
- Make text follow an arc or any other path, with micro-justification
- Add shadows, colours, slopes and other effects
- Scale, kern or rotate individual letters as well as groups
- Use your results wherever you could use Draw files
- See all effects immediately and modify them without going back to square one. ***It's all so easy!***

FONTASY SITE LICENCE £80

Including Drawbender and Placard (£70 if you already have Drawbender)

SINGLE USER COPY £25

Do your fonts a favour, just look at what you can get them to do with Fontasy

All kinds of shadow

ARCS AND *SLOPES*

ROLLING TEXT EASY!!

MAKE TEXT FOLLOW ANY PATH!

DrawBender

Moulds a Draw object into a new shape defined by you. Easy to use and fun to watch. High quality results with new fast option. Supplied with three outline fonts.

Single user £15 **Site licence £50**

Free with Fontasy site licence

Placard

Prints a Draw file across several A4 sheets to create massive posters using an ordinary printer. Automatic best fit and cutting guides.

Single user £10 **Site licence £30**

Free with Fontasy site licence

Please enquire about Ian Copestake Software's other value-for-money products, such as, **QuicKey** ('live' function keys on screen, £15) ● **Special** (neat selection of non-keyboard characters, £10) ● **Whisper** (the safe fan quietener, £15) ● **Dongle Dangle** (screw-in design £6).

Turn to our double-page price list for more information and ordering details, or for friendly advice telephone, 051-632 1234

ICS

051-632 1234

UK customers please add VAT to prices shown

NEW

BBC A3000 ARM3's

£ 199.00 + VAT

£ 233.83 inc VAT

Fitting (inc courier collection and return) £ 41.13 inc VAT

Archimedes ARM 3's

REDUCED

£ 199.00 + VAT

£ 233.83 inc VAT

For 300/400 series User fittable

NEW

ARCHIMEDES 540 RAM UPGRADES

4 Mb Board £ 345.00 inc VAT

ACORN A5000

NEW

2-4 MB Ram Upgrades
Hard Disc Upgrades 105 Mb +

PLEASE PHONE FOR DETAILS
Ram Upgrades available Nov 91

A3000 RAM UPGRADES

2nd Mb	£ 69.00 inc VAT
4th Mb	£ 200.00 inc VAT

Our 4Mb expansion board uses 8 x 4Mbit chips which will not overload your power supply.

310 RAM UPGRADES

Upgrade to 2 Mb	£200.00 inc VAT
Upgrade to 4 Mb	£300.00 inc VAT
Upgrade 2 to 4 Mb	£140.00 inc VAT

Includes fitting of the upgrade, courier collection and return of your computer.
THE FIRST & STILL THE BEST

CJE micro's

78 Brighton Road, Worthing,
West Sussex. BN11 2EN.
Telephone 0903 213361

Please send me further details on the following products.
Arm 3's ☐ Memory Upgrades ☐ General ☐

Name ....Tel ....
Address ....
....
Post Code ....Computer ....

'Appy New Year – Hic!'

pd

Teri Paul first foots her way into '92

WELL here we are, continuing our merry way through to the end of the festive season – Easter next. If your Christmas stocking wasn't full of all the goodies you'd have liked why not treat yourself to a little PD?

To start with there are quite a few Sillies which will include your poor Archie in the seasonal of goodwill: **!Swinger** and **!Drunk** – my copies came from Prime PD – should confuse the sober, never mind the inebriated as your mouse pointer takes on a life of its own.

If you have a Master why not enter into the spirit of things with MasterDisc's **Bubbles** or **Stars**? Not surprisingly the screen will be filled with a festive animation, without a drink passing the lips of the disc drive.

By the way Telstar PD use Genesis I Browser not Genesis II as I mentioned a couple of months ago. It's still a great way of displaying a catalogue.

Beeb-wise

On a more serious note why not reassess you career choice, or even make one? **Career Analysis**, though only available at the moment for the Master in ADFS format, asks you a set of questions which you must mark your interest in from 0 to 9.

Not only does the program ask you about subject areas but also about your personality. Perhaps it's a light-hearted approach to a serious decision, but I'd never thought about becoming a policeman before.

New to the BBC scene are JJF PD: 49 Hollyberry Close, Wingates Green, Redditch, Worcester B98 0QT. I'll let you know what they have got to offer next month.

Demonstrably clever

Some rather clever demos arrived on my desk this month and I'd like to give you a quick rundown of my favourites.

Do you remember the plastic flowers in pots, which with the addition of a battery would bop away to any sound which came their way? Well !Dance brings this star to your Archimedes grooving away to Popcorn from Hot Butter – it is that way round isn't it? Second is a particularly clever demo. With musical accompaniment from Jean-Michel Jarre a lissajous figure – complete with VU bars moving in time to the music – takes over your screen. However, it does fall foul of the system sprites so make sure you increase these on the Task Manager.

ScrolDemo is a larger program which teases you with a molecule construction and then takes you past the usual stars to landscapes of suburbs and city streets. Using software scrolling, because everything is moving at different speeds, there is a pretty border and some good music complete with samples.

SunDemo also uses a lissajous figure but the overscan mode allows it to go off the edges of the screen. Needing 320k of screen memory with 256 colours it is a very garish demo with so much going on at once that you can't take it all in.

But the stars are from ArcEmpire. There may not be many Archimedes programmers in Norway, but their quality and skill is unmistakable.

Rather than grabbing you by the collar !TransMortal features laid back music plus some really superb vector graphics, showing off programming skill and computer power. Unfortunately, you'll need 2Mb of ram to appreciate it.

!Bodgering comes from the same

➤

Keeping it short – with permission

Anyone who has had anything to do with the public domain will appreciate David Pillings' SparkPlug and ArcFS.

Actual archive makers, such as Spark, have always been commercial products and now ArcFS v 0.44 is available thanks to Mark Smith.

However, he has asked me to mention that people MUST gain his permission to add it to their catalogues, though libraries with permission to use version 0.3 can automatically use version 0.44. But ArcFSExtra must be available in the library and the read/write version IS NOT PD.

Computer Concepts have entered the fray too with their CFS Reader. This is the PD side of their commercial and fully copyrighted program, Compression.

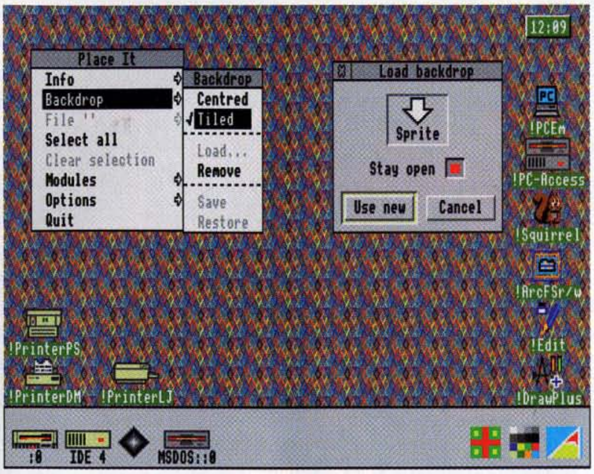
The differences? Spark doesn't behave like a filing system but is compatible with files produced on other programs and computers as it can use a standard archive format.

ArcFS is compatible with Spark, but has its own formats and treats files like filing systems. CFS Reader on the other hand, completely replaces a filing system and compresses as you load and save.

However, it doesn't use a separate archive file and neither is it compatible with the other formats. So you won't be able to save archives in PC format for instance.

(IT WOULD BE FABULOUS FOR USERS

Mega demos



➤

source and uses plotted sprites. But the scrolling and animation makes it impossible to read the text. Try and you'll end up with a mega headache.

!PlaceIt Again

A new version of !PlaceIt by Ian Ashley is now available – version 2.07. I covered this briefly a few months ago and it has since become an absolute must on my Archimedes.

By putting files, applications or whatever you want on to your desktop you can access these without having to delve through layers of your hard disc. I use mine in conjunction with Menon and it most definitely saves time, effort and headaches. However, don't dismiss PlaceIt if you only have a floppy system.

Put the programs, files and so on you want on to the desktop and save the layout. Next time you want to access, !Paint for instance, click on the icon and the system will ask you for the floppy this program is on. A boon if you have a lot of discs and can't remember which disc holds what program.

But what of the modifications to this new version? There have been some cosmetic changes and the hourglass is now turned on during start up.

There have also been a couple of bug fixes: It no longer crashes when you click menu over the info window. The problems with registered icons and crashes when !Help is run with the pointer over the info have been solved by Denis Howe. In addition enhancements have been made to comply with Risc OS3.

The most noticeable addition is in the Modules sub-menu. Along with Clock and Swimmer – a 12 or 24 hour clock and some nice fish and sharks – there is Command. Written by Denis Howe it is an approved module and one which I find very useful. Simply enter a name and type in the star command you'd like. A banana icon will appear on your desktop and when you double click here, the command you want will be executed.

If you like to change your default directory from time to time take a look at the Directory Changer option. Changing the default is simple – just select and then drag the icon to the filer window of the directory you want.

You can also change the backdrop of your desktop. This is quite an exercise which you could manage before, but PlaceIt makes it easier. First of all you need to decide what you want. You can use any sprite file and have a picture of an apple to a zebra if you want. Or you could design your own pattern very simply.

For instance to prepare a small repeating pattern, first create a ram disc, around 50k. If you have a prepared sprite file you don't have to do this. Load !Paint and !PlaceIt. Access the !PlaceIt menu and choose Tiled, followed by Load and Stay open. Create a sprite window in !Paint with a width of 32 and height of 16 in Mode 12 and click on the palette button.

Now put this sprite into your ram disc and edit the sprite. Here create the pattern you want using as few or as many of the !Paint options as you want. Save to ram and then drop the file on to the large arrow in the open !PlaceIt window. You can save your backdrop of alternatives: Weeds for Wanda to swim around, morse code messages, the list is endless. Have fun.

This month's discs

As well as program listings and PD, the Archimedes January subscription disc also includes a taste of virtual reality. Especially written for **The Micro User** there's a playable demo of Incentive's 3D Construction Kit.

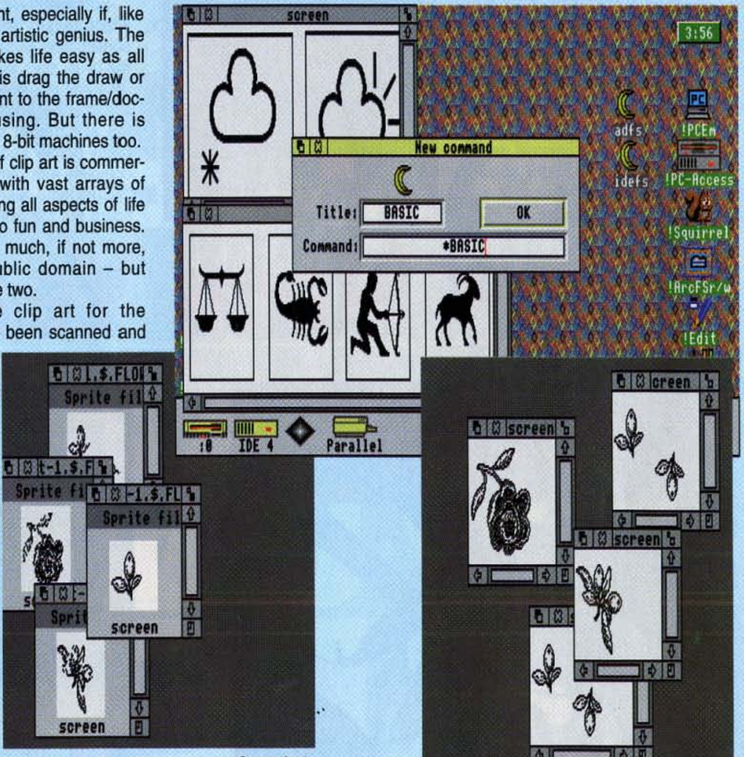
BBC Micro subscribers can enjoy some of the many music samples now available for the BBC and Master.

Clipping away merrily courtesy IBM and Apple

Clip Art is brilliant, especially if, like me, you are no artistic genius. The Archimedes makes life easy as all you have to do is drag the draw or paint file you want to the frame/document you're using. But there is quite a lot on the 8-bit machines too.

A great deal of clip art is commercially available with vast arrays of drawings, covering all aspects of life from education to fun and business. There is just as much, if not more, available as public domain – but don't confuse the two.

A lot of the clip art for the Archimedes has been scanned and touched up or ported from the IBM PC, Amiga or Apple Macintosh worlds. Most of it is of extremely high quality and discfuls are available from most PD libraries – the majority of mine came courtesy of Datafile and ArchAngel. Datafile's illuminated letters are very nice indeed.



Title: BASIC

Command: *BASIC

Canned art

Merry Christmas
& a Happy New Year
from
Arch Angel

Arch Angel
Arch Angel
Arch Angel
The PD Library

Our Christmas special disc and pick n mix catalogue disc available until Jan 16th '92 for only £1.50 inc. P&P.
(or £1 coin for catalogue disc only)

The Christmas disc contains festive demos, great soundtracker carols, and some useful sprites - you won't be disappointed with it!

The catalogue disc has been described by several magazines as the best one around so send off now and see for yourself!

Send cash or cheque (Payable to S.Creech) to:
2 Bridge House, 17 Lower North Street,
Exeter, Devon, EX4 3ET. (0392) 422759.

SPECIAL
20p
OFFER

Skyfall

For One Month Only the Skyfall Printed Catalogue & Winter Demo Disc are available at the ridiculous price of only 20p. Skyfall now stocks over 500 discs of PD & offers a telephone support hotline.

Please Send a 20p Coin to:
Skyfall, PO Box 2220,
Birmingham. B43 5RZ

The Arcaynia Xmas

Demo Disc 8

With 16 Page Xmas Shopping Catalogue

Get in the seasonal mood, with our Xmas Demo Pack, crammed with over 1600k of new and festive software, some exclusive to Arcaynia.

For the best Archimedes Xmas PD send a £1 Coin Now!

PO Box 1927 : Sutton Coldfield : B74 3QZ

PRIME PD

Quality Public Domain Software for the Archimedes.
2 free discs for every 10 bought. All 800K discs £1.
NEW - The Prime PD Christmas pack.
Features 12 discs of the best PD from a variety of categories. All 12 discs for only £10.
Special help for schools choosing PD. Friendly and reliable service.
Most orders processed in 24hrs.

DEMO DISC 2
Our Demo Disc 2 features 1.5 Mb of compacted PD software and our brand new, highly detailed, mouse driven cataloguing program.
Send £1 for our demo disc catalogue 2 and printed catalogue, or an SAE for our printed catalogue only.

Cheques and PO's payable to 'Ian Kershaw'.
PRIME PD (MU1), 29 Tulworth Road, Poynton, Cheshire SK12 1BQ

Archimedes Software

Disc 7 - Chess - The best Archie Chess program
A Chess program that takes full advantage of RISC OS, installing itself on the icon bar and running on the desktop in a window. You can work with other programs whilst you play. Risc User July 1991 said: *"Chess is an absolute bargain. .playing at a comparable level it always beat Micro Power's offering. ...this has to be the one to go for".*
Acorn User October 1991 said: "*It plays an excellent game*".

Disc 8 - CrossStar 2.XX Crossword puzzle solver
RISC OS compliant desktop Crossword puzzle solver. 200,000 word dictionary. Solves interlocking clues. Editable/ user definable dictionaries. Saves grids as Draw files. Browse through dictionary. Add new words to dictionary.

Disc 16 - Spark RISC OS Archive program
Spark, allows you to store files and directories in archive files in a very compressed form. e.g. sprites often take up only 10% of normal space. Files in archives, can be accessed just like files in disc directories. Reads these formats, zoo, zip, lzh, UNIX and Archie Tar, Compress.Writes PKarc, SEA/PC arc.

Disc 32 - Charm language and development environment
Charm, is a high level language like Pascal or C. This implementation, includes a compiler, linker and assembler, with an editor, and a desktop environment to use them from.

Disc 33 - Panorama. Your window on the World!
180,000 coordinates outlining the lakes, rivers, continents, borders etc. of the World and a program that can produce Draw files from them. You can make maps of any part of the world and then use them in DTP programs. Includes positions of nearly 1000 cities. Mercator and perspective projections.
Discs cost £5.99 each inclusive Buy four claim one free!

Banish Those Jaggy Blues !

Disc 35 Trace
- Trace converts Sprites into Draw files.
- Sprite format clip art is cheap and plentiful. Draw clip art is expensive and usually has to be painstakingly drawn by hand.
- Sprites take up lots of valuable disc space. Draw files are smaller.
- Scaled Sprites have jagged edges.
- Unlike some trace programs, Trace will work with full colour sprites.
- You can now use the powerful tools in Draw for manipulating Sprites.

Comes with D2Font program for making outline fonts from Draw files. So you can scan your own fonts. Cost £5.99 inclusive.

Clip Art Packs
Each pack consists of three discs filled with good quality black and white Sprites for use in DTP. The files are compressed using Spark so many 100's of pictures and Mb. come in each pack.
Pack #1: Decorative alphabets. Anatomy. Animals. Astrology. Books. Stylish pieces of text. Pointers-hands and arrows. Outlines for cards.
Pack #2: Cartoon and comic characters. Flowers. Foods. Miscellanea.
Pack #3: Music. TV and folklore monsters. Mythical and religious beasts and objects. People and celebrities. Space, space travel.
Pack #4: Peoples heads. Christmas. Easter. Halloween. Transport, boats, cars, trains planes. Old cars. Company logos and icons.
Pack #5: Woodcuts. Whimsy. Sports - football, baseball, tennis etc.
Each pack is £5.99 inclusive.

David Pilling, P.O. Box 22, Thornton Cleveleys, Blackpool. FY5 1LR.
Free Air Mail delivery on overseas orders. Extensive range of other Archimedes software available (programmers tools, games, utilities, art), please send for free list.

Product: 3D Construction Kit
Price: £tba
Supplier: Domark, Ferry House, 51-57 Lacy Road, Putney, London SW15 1PZ.
Tel: 081-780 2222
Requirements: Risc OS

EXCLUSIVE

Nearly virtual reality?

Pam Turnbull previews the impact of New Dimension's 3D Construction Kit

OLD hands in the home computer world, will remember the glee with which the computer press welcomed Driller on the Amstrad CPC about four years ago. A 3D wire-frame graphics game set on an alien world, it used Incentive's Freescape system. Solid 3D followed, making its debut with DarkSide.

Interesting and innovative, Freescape graduated on to the PC a couple of years later in the form of Superscape – altogether more powerful, and rejoicing in the description Desktop Virtual Reality.

Virtual reality is a concept which has been promoted very heavily over the last 18 months. The Virtuality system – among others – exploits the entertainment side. By immersing you in solid 3D graphics you move around a landscape in real-time. As you move your head left, for instance, your view changes. All you can see is the landscape – no computer screen, no real world. Whole body suits are under development in the States and gloves are in use in the UK – with varying degrees of success.

The real users are – and will probably remain for some time – the military. Their flight simulators are frighteningly real and simplified versions can be seen in arcades up and down the country.

PC Virtuality

Superscape itself now creates the worlds which you can see in virtual reality systems. Incredibly powerful, the program I glimpsed on a 486 PC was extremely detailed: Doors can be opened, chairs spun and telephones ring. Applications are not just limited to the entertainment industry, virtual reality has a home in modelling, planning and manufacturing to name but a few applications.

But where is Acorn's place in this world? Cholo on the BBC came closest to Driller, but since then nothing. Now Freescape is available for the Archimedes – not just as a game but a toolkit to allow you to create your own worlds.

Written in C, the 3D Construction Kit doesn't work too happily with anything else in memory, so be warned. You will also need a couple of hours minimum with this product to break the back on the interface and start to appreciate the flexibility of its own programming language.

Do read the manual or you'll soon be lost. The text is well laid out and intuitive to use and neither the manual nor the interface expect you to be a programmer.

Designing

Loading up the Kit will present you with a screen consisting of pull-down menus, icons and a view window resembling grass and the sky. That is two rectangles, one blue and one green.

Now you can start to design. Hopefully you'll have some idea of what you want: A model of a new housing estate, an adventure game, or a space odyssey. There is a PD adventure game supplied, created using the Kit, but let's look at the housing estate to start with.

First of all you need to create the houses. Using the mouse select the create icon – or use the pull down menus if you prefer – and you'll be presented with a selection of shapes: Pyramid, cube, rectangle, quadrilateral, pentagram and hexagon. You could create a basic house shape using a cube, pyramid and a rectangle.

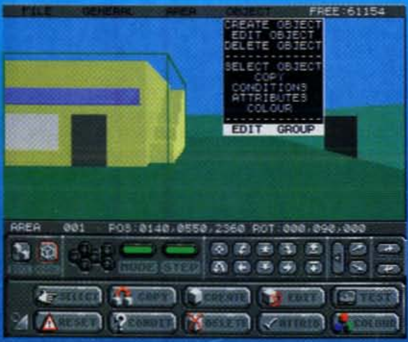
Choose the cube and then enter edit mode. You have now created an object with a number – Cuboid 001. By clicking on the view screen the object will be highlighted in the list. Otherwise click the name of the object.

Edit mode allows you to move, expand, shrink, rotate in 90 degree steps to get the shape you want. If you move your shape away from you, note that it automatically changes its perspective to give the idea of distance.

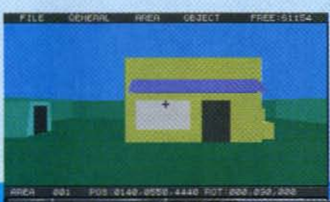
The different shapes allow various editing options, for instance the point options are not available for the cube and rectangle. To save time there are copy, save and load object options. Colours are changed in the colour menu or via the colour icon. There are 256 colours to choose from, but only solid colour is available as any shading or patterning would mean a decrease in speed.

You can move your world too, in relation to your object. There are directional movement icons which stay on screen in edit mode so you can move around and view your world from different angles. The coordinates are shown above the icon buttons.

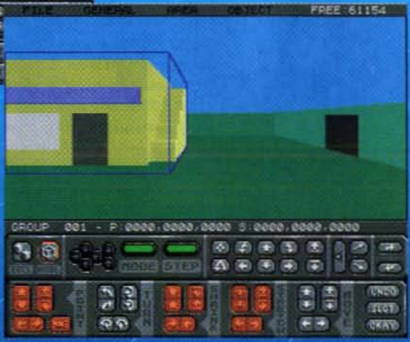
The number of different directional arrow icons can be a little offputting, but they breakdown into groups quite easily. Freescape icons are those which move you around the different areas you create: Back, forward, up, down, U-turn, rotate left and right or



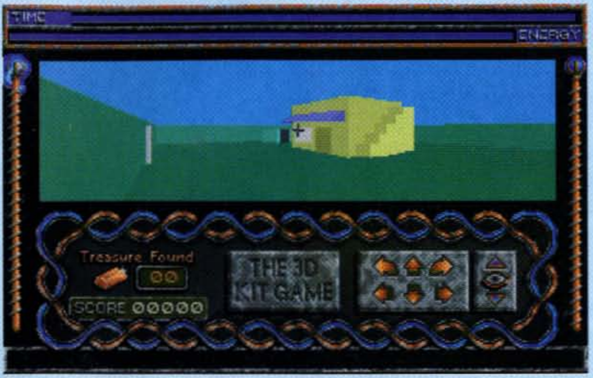
You can use buttons or menus



The edit view is the same as the playing view



Object position editing



Playing the game

look up and look down. The mode icons give you even more control. Walk mode allows you to move along the ground with the restriction of gravity, which means that if you climb on to object there is always the danger of falling off. Your height above the floor is restricted to 64 and 280 units corresponding to walking and crouching heights.

There are two Fly modes too: Fly 1 frees you from the restrictions of gravity, while Fly 2 means that you now fly in the direction you are looking.

The step option has two settings, fine and user, to change the pace at which you move. Very useful options – when you have a lot of objects on screen – are *excl* and *highl*. The former lets you see one particular object totally on its own, while *highl* puts a wire frame around an object. This helps if you are trying to differentiate between one of many similarly shaped and coloured objects.

The camera options are a touch more complex. Five cameras can be placed anywhere – control being similar to that of Fly 1. They can be placed inside objects or outside an area. They record their view when you switch to another camera, ready to resume when you return. Most usefully is that where the other modes have collision detection built-in, with the camera option there are no such restrictions.

Freescape language

Having created your shapes to resemble, for example, houses, people and roads in one area, you can expand this to another area – inside a house for instance. By selecting the area option from the menu, an area will now exist at the position you were in when the option was chosen.

By going to the area – again through the menus – you can design the inside of a house. You can make as many rooms/areas as you want, to a maximum of 255. But how does your customer/player – or you for that matter – get into this area?

This is where attributes, conditions, sensors and the Freescape Command Language come into their own. The FCL is very similar to Basic to look at and is quite easy and straightforward to learn even if you aren't the world's greatest programmer.

Each object can have its own program, or you can group different objects together – such as the individual components of a house – to react as one object. You can add a door to your house with a sensor, so that when someone approaches the door and operates it – with the middle mouse button – it will open.

You decide how close an individual has to be to do this. On the other hand if someone gets within a certain distance of the door it could open automatically using the animation condition you have placed on it.

By adding a condition to that same door you can enter a new area. And with some clever animation you can achieve the effect of a robot following you from area to area following the z, y, x coordinates. Though most movement is restricted to one area and includes collision detection.

For instance, if the door is object 3 – you can rename objects to be more descriptive – and object 4 is the doorway, you make the doorway invisible via the attributes option on both start and present status. Now make a condition on object 3 by selecting both of these and type:

```
IF ACTIVATED?
THEN INVIS(3)
VIS(4)
END IF
```

If you now select the door, it will vanish leaving the doorway. But to go to a new area you'll need to add:

```
IF COLLIDED?
THENGOTO(1,2)
END IF
```

Now as you walk into the doorway you'll be transported to entrance 1 in area 2.

The command language has a total of 256 variables, with the first 30 used by the system, including place and position. This leaves you to define shooting, activation, collision, movement, text windows, time, sounds and so on.

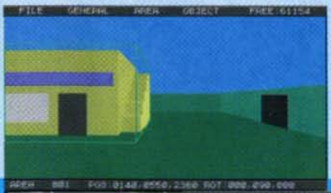
As you can see the programming is quite simple and the manual helps you through the learning curve. If the screen area is too small for you to see all your program, there is an option to print it all out.

The last option you'll probably use is Make. This adds the run-time information to create a standalone program as well as setting the size of the view window.

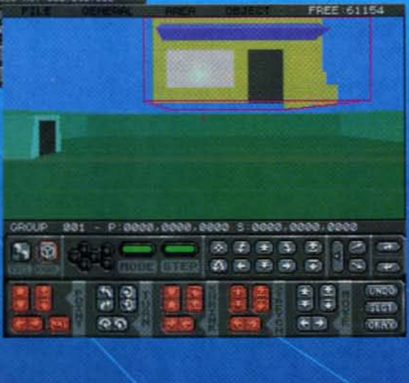
You'll notice on the PD game a very nice border. This and a flight deck-type border and interface are supplied, but you can create your own designs in !Paint, save them as sprite files and load them as a border.

By using the general menu you can access the controls, instrument and set view window options. These allow you to customise your finished user interface with sliding bars for energy and time, locational icons or quit boxes.

If you are an Archimedes subscriber, there is a special Public Domain demo version of the 3D Construction Kit and a copy of the adventure game on the January disc.


FILE GENERAL AREA OBJECT FREE 61154
AREA 001 POS 0148,0550,2360 ROT 000,090,000

The building is a group object


FILE GENERAL AREA OBJECT FREE 61154
GROUP 001 - P:0000,0000,0000 S:0000,0000,0000
MODE
STEP
UNDO
SLCT
DENY

Objects can be moved anywhere

Summing up

All in all this is a very versatile product which is easy to use, as you get immediate results. A libraries disc is on the cards for later this year as well as some more samples sounds and objects. Other possible future enhancements include more complex functions, such as multiplication and division, as well as cosine and sine. In addition, more extensive primitives would change the 90 degree rotation to 1 degree.

Although New Dimension can't see the Archimedes being powerful enough to cope with their Superscape system used on 486 PCs and workstations, I'm not quite so sure. But in the interim, Freescape is a must. Not just for gamers, not just for programmers, but for anyone with an interest in computers and their power and application in the real world.

Special offers Special offers Special offers

UPTO 90% OFF YOUR CURRENT RIBBON PRICES

In 1989 Western Europeans threw away over **128 million** printer ribbons. They weighed over **9,000 tonnes** in total and would reach **right around the world** if laid end to end. A used ribbon cartridge is being thrown away somewhere in the UK **every second** of every day.

You can help put an end to this environmental waste and save some money at the same time thanks to ***RE-INK***, a revolutionary new spray which brings new life to exhausted fabric printer ribbons.

RE-INK is cost effective and simple to use. Simply open up your plastic ribbon cartridge, spray a few squirts of ***RE-INK's*** special ink and lubricant formula and your ribbon is as good as new – sometimes even better!

BEST OF ALL,
RE-INK *IS*
AVAILABLE IN THIS
SPECIAL READER
OFFER FOR ONLY

£12.95

- ★ ***RE-INK*** will save up to **90%** on what you currently spend on new ribbons
- ★ ***RE-INK*** – treated ribbons give **clearer, blacker** print than new ribbons
- ★ ***RE-INK*** is a very **high quality ink** – no blotchy or patchy ink
- ★ ***RE-INK*** is universal – it works with **all** fabric ribbons
- ★ ***RE-INK*** can extend the life of your printer with its special **lubricant** oils

AVAILABLE FROM MD OFFICE SUPPLIES

DISKETTES

Specialists for over 3 years supplying Education, Government, home user, quality, reliability, value for money.

YOU SIMPLY CANNOT BUY BETTER

3.5 DOUBLE SIDED DOUBLE DENSITY

50 DSDD 3.5 Plus deluxe storage box only	£29.95
100 DSDD 3.5 Plus deluxe storage box only	£44.95

This Months Special

200 DSDD 3.5 Plus 2 deluxe storage boxes only	£74.95

5.25 DOUBLE SIDED DOUBLE DENSITY

50 DSDD 5.25 Plus deluxe storage box only	£19.95
100 DSDD 5.25 Plus deluxe storage box only	£29.95
200 DSDD 5.25 Plus 2 deluxe storage boxes only	£49.95

5.25 DOUBLE SIDED HIGH DENSITY

30 DSHD 5.25 Plus deluxe storage box	£16.95
50 DSHD 5.25 Plus deluxe storage box	£27.95
100 DSHD 5.25 Plus deluxe storage box only	£39.95

3.5 DOUBLE SIDED HIGH DENSITY

10 DSHD 3.5 In Library case	£11.95
30 DSHD 3.5 Plus deluxe storage box	£34.95
50 DSHD 3.5 Plus deluxe storage box	£44.95
100 DSHD 3.5 Plus deluxe storage box only	£64.95

BANX STACKABLE BOXES

Features Include
Both stack horizontally and vertically

90 Capacity 3.5	180 Capacity 5.25 or 130 3.5
Very high quality manufacture Anti-static Protective lock Colour coded dividers	Beautiful strong design Anti-static Protective lock Colour coded dividers Smooth draw operation
only **£8.95**	only **£16.95**

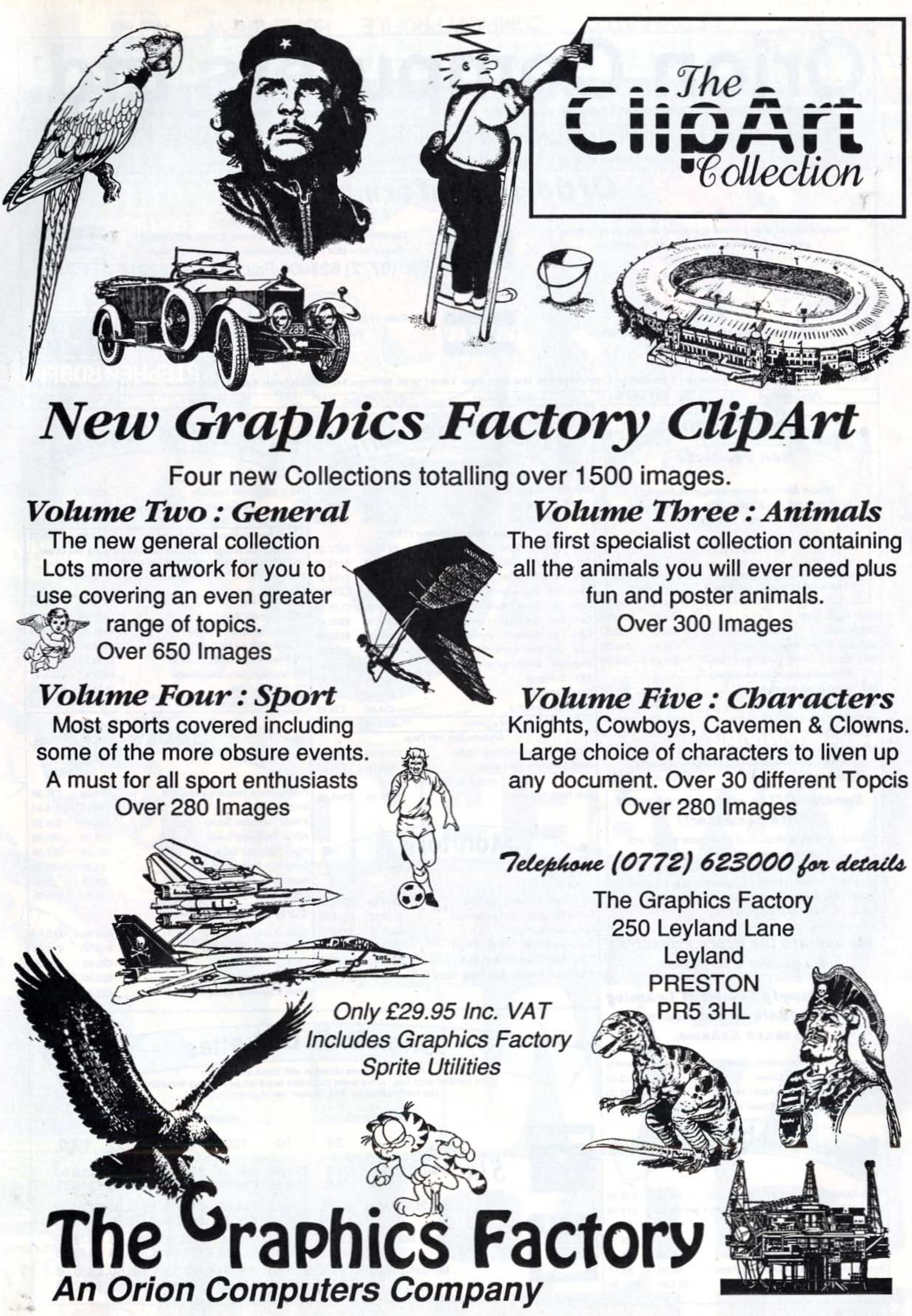
MD Office Supplies

18 Crescent Way, Farnborough,
Kent BR6 9LS Tel: 0689 861400

Access

Educational & Govemment orders welcome

VISA



New Graphics Factory ClipArt

Four new Collections totalling over 1500 images.

Volume Two : General

The new general collection
Lots more artwork for you to
use covering an even greater
range of topics.
Over 650 Images

Volume Three : Animals

The first specialist collection containing
all the animals you will ever need plus
fun and poster animals.
Over 300 Images

Volume Four : Sport

Most sports covered including
some of the more obsure events.
A must for all sport enthusiasts
Over 280 Images

Volume Five : Characters

Knights, Cowboys, Cavemen & Clowns.
Large choice of characters to liven up
any document. Over 30 different Topcis
Over 280 Images

Telephone (0772) 623000 for details

The Graphics Factory
250 Leyland Lane
Leyland
PRESTON
PR5 3HL

Only £29.95 Inc. VAT
Includes Graphics Factory
Sprite Utilities

The Graphics Factory
An Orion Computers Company

Orion Computers Ltd.

Acorn Key Dealer ☆ Component Level Service Centre *Acorn Network Dealer ☆ Citizen Premier Dealer*

PLEASE REMEMBER WHEN COMPARING PRICES - WE DO NOT CHARGE CARRIAGE

on standard delivery within the UK. Next Day Courier Service £6.00 Carriage on Export Orders charged at cost.

Ordering Information

By Post

Please send your orders including a signed cheque, postal order or credit card number & expiry date (**NOT CASH**) to:

Department MU1
250 Leyland Lane
Leyland
Preston
PR5 3HL

All cheques and bankers drafts to be made payable to
Orion Computers Limited

By Telephone

Telephone orders may be place between 9:30am and 5:00pm
Please have your credit card number and expiry date ready

Tel: **(0772) 623000** Fax: **(0772) 622917**

In Person

Callers most welcome. We are situated 3 miles from M6 J28.
(Please see opposite page for directions)

All offers subject to availability. Government & Educational Orders Welcome. **Minimum Order Value £10.00. Minimum Educational Order Value £15.00. Please note. VAT is quoted at 17.5%**

Acorn Computers

New Products

Acorn A5000 & Acorn Badged Multisync

RISC OS 3.00, Arm 3 25Mhz CPU, 40Mb IDE Drive, 2Mb Ram, 1.6Mb Floppy.

Mk II Learning Curve

1st Word PLus, New PC Emulator, Genesis Plus, 2hr Introductory cassette, LC Mag. & Pacmania, also just over the christmas period Lemmings & TDK blank discs.

Description	*Ex. VAT*	*Inc. VAT*
BBC Master 128K	399.00	468.83
BBC A3000	599.00	703.83
BBC A3000 Learning Curve Mk II	637.45	749.00
BBC A3000 Learning Curve Mk II Colour (Includes Acorn AKF17 & Stand)	850.21	999.00
BBC A3000 Special Access	679.00	797.83
Archimedes 410/1	899.00	1056.33
Archimedes 420/1 Learning Curve	1105.53	1299.00
Acorn A5000	1499.00	1761.33
Acorn A5000 Learning Curve Mk II	1531.06	1799.00
A5000 price includes an Acorn Multisync Monitor		
Archimedes 540	2495.00	2931.63

Special Offer when purchased with computer!!

A3000 -	£35.00 discount off other goods bought with computer, plus either 2Mb Upgrade F.O.C., 4Mb for £100.00
A410/1 -	20Mb IDE HD + Upgraded to 2Mb F.O.C.
A420/1 -	40Mb IDE HD + Upgraded to 4Mb F.O.C.
A540 -	4Mb RAM Upgrade F.O.C.

We operate the Acorn Education & Teacher's Schemes.

We can supply The Mk II Learning Curve Models on the Acorn 0% Finance Scheme.

Finance available over twelve months.	Deposit	Monthly
A3000 Learning Curve Colour	99.00	75.00
A5000 Learning Curve & Acorn Multisync	179.00	135.00

Finance Prices Shown above **INCLUDE VAT**

Cables

Description	*Ex. VAT*	*Inc. VAT*
Arc to Monitor + Audio 1.2m (Not 8833 II)	£8.65	£10.16
Arc to 8833 Mk II Monitor Cable + Audio 1.5m	£8.65	£10.16
Arc Keyboard Extension Cable 2m	£7.75	£9.11
Arc Mouse Extension Cable 2m	£7.75	£9.11
Arc Keyboard Replacement Cable	£6.95	£8.17
Arc Mouse Replace. Cable (State Type)	£6.95	£8.17
4 way protector socket on trailing lead	£17.95	£21.09

A400/1 Accessories

Items marked with an * can be used on A300/540.

Description	*Ex. VAT*	*Inc. VAT*
1Mb RAM Upgrade	£39.00	£45.83
2Mb RAM Upgrade	£75.00	£88.13
3Mb RAM Upgrade	£105.00	£123.38
Above memory fitted for £10.00		
Acorn Ethernet Card	£219.00*	£257.33
Arm 3 Upgrade (Adelph One)	£349.00	£410.08
4Mb to 8Mb Upgrade	£649.00	£762.57
Com. Con. Scan-Light Mk II A4	£369.00*	£433.58
Com. Con. Sheet Feeder for above	£149.00*	£175.08
Com. Con. Scan-Light + Feeder	£454.00*	£533.45
Com. Con. Scan-Light Junior	£165.00*	£193.88
Com. Con. Scan-Light 256	£199.00*	£233.83
Com. Con. Sheet Feeder for A4	£94.00*	£110.45
VIDC Enhancer	£27.00	£31.73
Econet Module	£48.00*	£56.40
Beebug Disc Buffer	£34.00	£39.95
Orion TV Modulator + Audio	***£65.00****	***£76.38***
Archimedes 540 Only		
4Mb RAM Upgrade (Upto 16Mb)	£379.00	£445.33
VIDC Enhancer (540 only)	£10.00	£11.75
Acorn A5000 Only		
2Mb Ram Upgrade	£125.00	£146.83

Monitors

Description	*Ex. VAT*	*Inc. VAT*
Acorn Colour Monitor (AKF17)	£200.00	£235.00
Philips CM8833 II Colour Monitor	£209.00	£245.58
Microvitec CUB3000	£200.00	£235.00
Taxan MultiVision 775 (0.28 d.p.)	£389.00	£457.08
Taxan MultiVision 795A (0.26 d.p.) (FST Black Trinitron Anti-Glare Tube)	£439.00	£515.83

A3000 Accessories

Description	*Ex. VAT*	*Inc. VAT*
Orion 1 Mb RAM Upgrade (Expandable to 4Mb using only 8 chips)	£55.00	£64.63
Orion 3 Mb RAM Upgrade	£156.00	£183.30
A3000 Podule Expansion System	£54.95	£64.57
2 slot external podule expansion case allowing the use of two compatible 400 series cards simultaneously. For example, the CC Laser Direct Card with an Orion IDE Interface.		
Serial Upgrade	£18.00	£21.15
PRES Monitor Stand	£24.95	£29.32
CC Scanlight Junior A3000	£165.00	£193.88
CC Scanlight A4 Mk II A3000	£369.00	£433.58
CC Sheetfeeder for A4 Scanner	£149.00	£175.08
CC Scanlight A4 + Sheetfeeder	£454.00	£533.45
CC Scanlight 256	£199.00	£233.83
Orion TV Modulator + Audio	***£65.00***	***£76.38***

Books

Description	*Ex. VAT*	*Inc. VAT*
Programmers Reference Manuals	£77.00	£77.00
BASIC V Guide	£19.45	£19.45
A3000 Technical Guide	£28.95	£28.95
A5000 Technical Guide	£65.00	£65.00
A540 Technical Guide	£65.00	£65.00
Basic V: A Dabhand Guide	£9.95	£9.95
Archimedes First Steps	£9.95	£9.95
Archimedes Assembly Language	£14.95	£14.95

Extra Manuals

Description	*Ex. VAT*	*Inc. VAT*
Acorn D.T.P.	£10.00	£10.00
1st Word Plus Release 2	£10.00	£10.00
ANSI C Release 3	£20.00	£20.00
ANSI C Release 4 (Desktop C)	£25.00	£25.00
Acorn Assembler Rel. 2 (Desktop Ass.)	£25.00	£25.00

Orion Bulk Diskettes

All our disks come complete with labels etc. and are 100% certified error free. In the event that a disk fails it will be replaced immediately.
Top row of prices ex. VAT. Bottom row of prices inc. VAT.

		Quantity					
		25	50	100	250	500	1000
5¼	DS/DD 96tpi	N/A	£14.00	£26.00	£60.00	£115.00	£210.00
		N/A	£16.45	£30.55	£70.50	£135.13	£246.75
3½	MF/2DD 1Meg	£9.75	£19.50	£34.00	£77.50	£145.00	£270.00
		£11.46	£22.91	£39.95	£91.06	£170.38	£317.25
	Sony Bulk	£12.50	£25.00	£45.00	£106.25	£200.00	£375.00
		£14.69	£29.38	£52.88	£123.84	£235.00	£440.63
	MF/2HD 2Meg	£18.75	£37.50	£68.00	£162.50	£295.00	£530.00
		£22.03	£44.06	£79.90	£190.94	£346.63	£622.75

Printers

PLEASE NOTE

ALL our printers are **UK** Models and **NOT** grey imports. Please take this into account when deciding where to purchase your printer.

Description	Ex. VAT	Inc. VAT
C.C. Qume Laser Direct	£859.00	£1009.33
C.C. 600 DPI Expansion Card	£319.00	£374.83
Canon LBP4 Laser for above	£659.00	£774.33
C.C. 600 DPI LBP8 Laser Direct	£1319.00	£1549.83
Canon Bubblejet BJ10e (White or Black)	£219.00	£257.32
Citizen 120D+ (Parallel)	£115.00	£135.13
Citizen 224	£199.00	£233.83
Citizen Swift 9	£162.00	£190.35
Citizen Swift 24e	£235.00	£276.13
Citizen Swift 24xe	£329.00	£386.58
H.P. Deskjet 500	£339.00	£398.32
Star LC20	£130.00	£152.75
Star LC200 Colour	£175.00	£205.63
Star LC24-200 Mono	£205.00	£240.88
Star LC24-200 Colour	£249.00	£292.58

Ribbons (Branded)

Description	Ex. VAT	Inc. VAT
Amstrad DMP2000/3160	£5.50	£6.46
Citizen 120D	£3.80	£4.47
Citizen Swift 24 Black	£4.00	£4.70
Citizen Swift 24 Colour	£15.00	£17.63
Epson LX80/86	£4.00	£4.70
Epson FX80,MX80,LX800	£5.00	£5.88
Epson LQ400,550 Fabric	£6.00	£7.05
Epson MX100,FX1000,FX1050	£6.75	£7.93
Epson EX800/1000 Black	£7.90	£9.29
Panasonic KXP145.KXP115	£7.95	£9.34
Panasonic KXP140	£10.00	£11.75
Star LC10	£4.25	£4.99
Star LC10 4 Colour	£6.50	£7.64
Star LC200 Black	£6.00	£7.05
Star LC200 Colour	£12.00	£14.10
Star LC24/10 / LC24 200 Black	£8.00	£9.40
Star LC24 200 Colour	£13.50	£15.86
Cartridges		
Canon LBP4 Toner Cartridge	£55.00	£64.62
Canon LBP8 Toner Cartridge	£62.00	£72.85
Canon BJ130 Bubblejet (BJI481)	£10.00	£11.75
Canon BJ10e Bubblejet (BC01)	£16.29	£19.14
Canon BJ300/330 Bubblejet (BJI642)	£12.00	£14.10
Colourjet 132/Canon PJ1080 Black	£9.25	£10.86
Colourjet 132/Canon PJ1080 Colour	£14.75	£17.33
HP Paintjet Black	£21.00	£24.68
HP Paintjet Colour	£26.00	£30.55
HP Deskjet + (Permanent Ink)	£13.20	£15.51
Qume Crystal Print Toner Set	£67.00	£78.73
Qume Crystal Print Drum Set	£89.00	£104.58

Ribbons (Comp.)

All of our compatible ribbons are high quality British brand.

We do not sell "White Box" compatible ribbons.

Description	Ex. VAT	Inc. VAT
Brother M1009,M1109	£4.00	£4.70
Brother HR10,15,20,25,35 Fabric	£4.30	£5.05
Brother HR10,15,20,25,35 Multistrike	£4.30	£5.05
Canon PW1080A	£4.55	£5.23
Citizen 120D/Swift 24	£3.50	£4.11
Epson LX80,86	£2.95	£3.47
Epson FX80,MX80,LX800,LX850	£3.60	£4.23
Epson LQ500,LQ800,LQ850	£4.15	£4.88
Epson LQ1000,LQ1050,FX1000	£5.30	£6.23
Epson LQ2500,LQ2550	£6.55	£7.70
Epson EX800	£6.55	£7.70
Panasonic KXP1081,1180,1090,1124	£4.20	£4.94
Star LC10	£3.45	£4.05
Star LC10 4 Colour	£5.50	£6.46
Star LC24/10	£4.80	£5.64

Discounts available on all ribbons for volumes of 3 plus

Please call for prices on any ribbons not listed here. We can supply almost any ribbon required and, dependent on quantity, any colour.

Please Note - Quoting the CARMA Group Code speeds up our search for a ribbon compatible with your printer.

Archimedes/A3000 Software

DTP

Description		Ex. VAT	Inc. VAT
Impression II (CC)		£129.00	£151.57
Impression Junior (CC)		£74.00	£86.95
Impression Business Supplement		£42.00	£49.35
EasiWriter (Icon Technology)		£134.00	£157.45
Desktop Folio (ESM)		£79.00	£92.83

Spreadsheets

Description		Ex. VAT	Inc. VAT
Sigmasheet (Minerva)		£39.95	£46.94
Schema (Clares)		£99.00	£116.33

WordProcessors

Description		Ex. VAT	Inc. VAT
1st Word Plus Release 2 (Acorn)		£69.95	£82.19
Eas!Word (Minerva)		£16.00	£18.80
Protext 5.0 (Arnor)		£119.00	£139.83

Integrated Packages

Description		Ex. VAT	Inc. VAT
Pipedream 3 (Colton)		£119.00	£139.83
Desk Top Office (Minerva)		£69.95	£82.19

Databases

Description		Ex. VAT	Inc. VAT
Datavision (Silicon Vision)		£127.45	£149.75
Flexifile (Minerva)		£84.45	£99.22
Multistore (Minerva)		£154.95	£182.07
Genesis II (Oak Solutions)		£119.00	£139.83
Knowledge Organiser (Clares)		£42.00	£49.35

Accounting Software

Description		Ex. VAT	Inc. VAT
Financial Accountant (S. Vision)		£233.75	£274.66
Home Accounts (Minerva)		£34.95	£41.07
Business Accounts (Minerva)		£299.00	£351.33
Office Tools (S. Vision)		£318.75	£374.53

Languages

Description		Ex. VAT	Inc. VAT
ANSI C Release 3 (Acorn)		£125.00	£146.88
Desktop C (Acorn)	**NEW**	£189.00	£222.08
Desktop Assembler (/Acorn)	**NEW**	£129.00	£151.58
RiscForth (S. Vision)		£127.45	£149.75

Music

Description		Ex. VAT	Inc. VAT
Armadeus (Clares)		£61.00	£71.68
Rhapsody II (Clares)	**NEW**	£44.95	£52.82
Tracker (Serial Port)		£38.95	£45.77

Utilities

Description		Ex. VAT	Inc. VAT
Arc DFS (Dabs Press)		£22.95	£26.97
Dot Matrix Colour Printer Driver (Ace)		£12.72	£14.95
Compression (CC)	NEW	£42.00	£49.35

Education

Description		Ex. VAT	Inc. VAT
Fun Sch. 3 Under 5's (Database)	**NEW**	£18.00	£21.15
Fun Sch. 3 5-7 (Database)	**NEW**	£18.00	£21.15
Fun Sch. 3 Over 7's	**NEW**	£18.00	£21.15

Graphics Manipulation

Description		Ex. VAT	Inc. VAT
Poster + Fonts (4Mation)		£79.00	£92.83
Render Bender II (Clares)	**NEW**	£99.00	£116.32
Graphbox Professional (Minerva)	**NEW**	£104.95	£123.32

Graphics - Art

Description		Ex. VAT	Inc. VAT
Pro Artisan (Clares)		£79.00	£92.83
Atelier (Minerva)		£69.95	£82.19
Clipart Coll. Vol. 1 (General)		£19.95	£23.44
Clipart Coll. Vol. 2 (General)	**NEW**	£25.49	£29.95
Clipart Coll. Vol. 3 (Animals)	**NEW**	£25.49	£29.95
Clipart Coll. Vol. 4 (Sport)	**NEW**	£25.49	£29.95
Clipart Coll. Vol. 5 (Characters)	**NEW**	£25.49	£29.95

Misc

Description		Ex. VAT	Inc. VAT
PC-Emulator V1.7 (Acorn)	**NEW**	£94.00	£110.45
Investigator II (Serial Port)		£22.95	£26.97

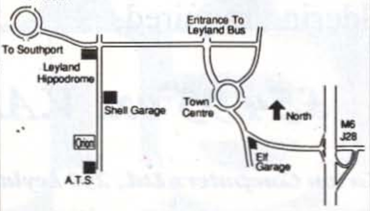
We would like
to wish all our customer's
new and old a very
Merry Christmas
and a prosperous
New Year

Games

Description		Ex. VAT	Inc. VAT
Adv. of Sylvia Lain (4th Dim.)	**NEW**	£18.00	£21.15
Air Supremacy (Superior)	**NEW**	£18.00	£21.15
ARCticulate (4th Dim.)		£18.00	£21.15
ARCtist (4th Dim.)		£18.00	£21.15
Ballarena (Eterna)		£14.45	£16.98
Blowpipe (Eclipse)		£14.45	£16.98
Blaston (Eterna)		£14.45	£16.98
Boogie Buggy (4th Dim.)		£18.00	£21.15
Break 147/Superpool (4th Dim)		£18.00	£21.15
Bubblefair (Eterna)		£14.45	£16.98
Cartoon Line (Eterna)	**NEW**	£18.00	£21.15
Catalysm (4th Dim.)	**NEW**	£18.00	£21.15
Chess 3D (Micropower)		£14.45	£16.98
Chequered Flag (CIS)	**NEW**	£18.00	£21.15
Chocks Away Version II (4th Dim.)		£18.00	£21.15
Chocks Away Extra Missions		£14.45	£16.98
Chocks Away Compendium		£28.00	£32.90
Chuck Rock (Krisalis)	**NEW**	£19.50	£22.91
Drop Ship (4th Dim.)		£14.45	£16.98
E - Type (4th Dim.)		£14.45	£16.98
E - Type Compendium (4th Dim.)	**NEW**	£18.00	£21.15
Elite (Hybrid)	**NEW**	£32.00	£37.60
Enter the Realm (4th Dim.)	**NEW**	£18.00	£21.15
Fine Racer (Eterna)		£14.45	£16.98
Grievous Bodily 'ARM (4th Dim.)	**NEW**	£18.00	£21.15
Holed Out Compendium (4th Dim.)	**NEW**	£18.00	£21.15
Hostages (Superior)		£14.45	£16.98
Iron Lord (Cygnus)		£14.45	£16.98
Inertia (4th Dim.)		£14.45	£16.98
Interdicter II (4th Dim.)		£24.00	£28.20
James Pond (Krisalis)	**NEW**	£19.50	£22.91
Kerbang (Eterna)	**NEW**	£11.45	£13.45
Kaptain Konflikt (Caldergien)		£12.00	£14.10
Leg. of the Lost Temple (Eterna)	**NEW**	£18.00	£21.15
Lemmings (Krisalis)	**NEW**	£19.50	£22.91
Mad Professor Mariarti (Krisalis)		£14.45	£16.98
Magnetic Scrolls Colln (Virgin)	**NEW**	£25.00	£29.38
Manchester Utd. (Krisalis)	NEW	£19.50	£22.91
Manchester Utd. Europe (Krisalis)	**NEW**	£19.50	£22.91
Master Break (Superior)		£14.45	£16.98
Microdrive 3D World Series (CIS)	**NEW**	£10.45	£12.28
Mig-29 Super Fulcrum (Domark)	**NEW**	£30.00	£35.25
Minipack 4 (C.I.S.)		£19.95	£23.44
Minipack 5 (C.I.S.)		£23.95	£28.14
Nevryon (4th Dim.)		£14.45	£16.98
Pandora's Box (4th Dim.)	**NEW**	£18.00	£21.15
Poizone (Eterna)	**NEW**	£14.45	£16.98
Powerband V. II (4th Dim.)		£18.00	£21.15
Rockfall (Eterna)	**NEW**	£14.45	£16.98
The Real McCoy 1 or 2 (4th Dim.)		£21.50	£25.26
Tower of Babel (Cygnus)	**NEW**	£18.00	£21.15
Twin World (Cygnus)		£14.45	£16.98
Saloon Cars (4th Dim.)		£18.00	£21.15
Speech (Superior)		£14.45	£16.98
Wimp Game (4th Dim.)		£14.45	£16.98
WorldScape (Eclipse)		£14.45	£16.98
World Champ. Boxing Man. (Krisalis)		£19.50	£22.91
World Champ. Squash (Krisalis)		£19.50	£22.91
Wonderland (Virgin)		£24.50	£28.79
X-Fire (4th Dim.)	**NEW**	£18.00	£21.15
Zelanites (MicroPower)		£18.00	£21.15

Please ring for current prices on software NOT listed here

How to find us!



I.D.E.

High performance Hard Disc Sub-Systems for Archimedes & A3000 Computers

Fast A.T. Bus Interface.
Easy Installation.
Fit 2 drives internally (300/400/500 series)
A3000 compatible.
Tested with: Seagate, Quantum, Maxtor, Conner & Others.
Interface has worked with EVERY drive we have tried!!

Interface, Manual, and Cables
£119.00 ex. V.A.T.

Special Offer!! - I.D.E. Interface for £50.00 when purchased with one of our hard drives.

Standard Drives		Track Cache Drives	
20Mb	£145.00	52Mb	£249.00
239Mb	£459.00	105Mb	£339.00
		125Mb	£369.00
All drives for 400 series		180Mb	T.B.A.
supplied with all fixings.		210Mb	£589.00

For A3000 Please add £65.00 for case & power. Prices shown are excluding V.A.T.

A3000 Twin Podule Expansion System

Connect two 400 Series cards to your A3000 at the same time. Both podules are available for use with no switching or extra software needed.

Supplied in colour keyed case with full fitting instructions. No soldering required.

£54.95 ex. V.A.T.

MegaBytes!

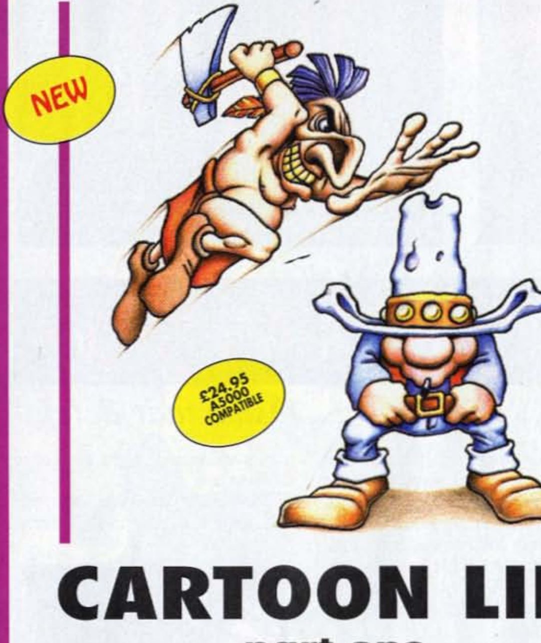
A400/A3000/A5000 Memory Upgrades

A400/1	
1Mb	£39.00
2Mb	£75.00
3Mb	£105.00
A3000	
1Mb*	£55.00
3Mb**	£156.00
1-3Mb Upgrade	£135.00
A5000	
2Mb	£124.00

Prices shown are Ex, V.A.T.
*Upgradeable to 3Mb
**Gives 3Mb using only 8 chips

Orion Computers Ltd., 250 Leyland Lane, Leyland, PRESTON, PR5 3HL. Tel: (0772) 623000

FOR LESS THAN £25 YOU CAN SAVE A LIFE ...



CARTOON LINE®

part one

LAST MINUTE : TO KILL A VULTURE YOU WILL NEED A WELL PLACED AXE.

The Legend of the
LOST TEMPLE

£24.95
A5000
COMPATIBLE

Hidden deep within the tropical rain forest of Peru, an ancient tribe, untouched by the 'civilised' world for thousands of years, lives in peaceful harmony with their environment.

Until a group of archaelogists, unwittingly carrying a virus, stumble upon the village.

With no immunity to the virus the native soon fall ill, only the young, strong members of the tribe are unaffected.

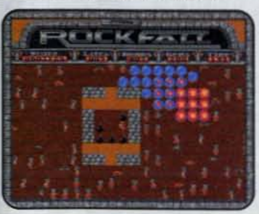
One of these is Kanu, the son of the village elder.

He remembers a story of a witch doctor who discovered the secret of life, and who has hidden it in a secret temple.With all other hope fading, Kanu decides to set off in search of this legend......

THE LEGEND OF THE LOST TEMPLE

Smooth multi-directional scrolling of 256 colour playfields.Over 50 sprites on-screen at one time.Multi-channel stereo music and sound effects. Fiendish puzzles. Devious traps. Hidden treasure rooms. Secret bonus levels. Secret cheat mode.

ROCKFALL



You will love this game.Marvellous animations from the authors of LUCKY LUKE and CUBITUS demos.

INDISPENSABLE

£19.95

BUBBLE FAIR

INKY and JINKY were just having fun,when the first bubble came down . 72 levels + challenges. Big overscan screen.

ADDICTIVE

£19.95

POIZONE

The first ever ecological game. Two players in a very large scrolling land.Fantastic graphics and sound.50 levels.

AT THE TOP

£19.95

Other great games from ETERNA

KERBANG	£14.95
TACTIC	£17.95
FINE RACER	£19.95
BALLARENA	£17.95
BLASTON	£19.95

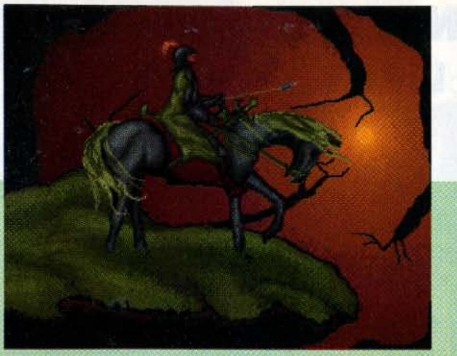
Watch out for the THING OF DARKNESS advertising. Available end 12-91 at £29.95

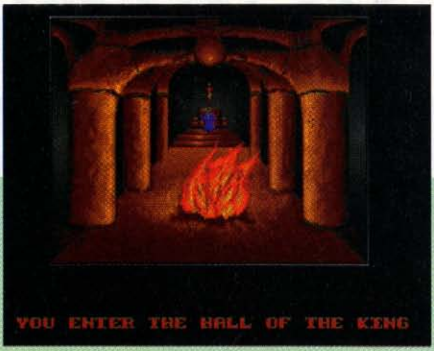
FULLY GUARANTEED - DUE TO THE NEW DISC CONTROLLER OF A5000 (A540) SOME PROBLEMS MAY OCCUR WITH OLD DISCS.

SEND IT BACK TO OUR FRENCH ADDRESS

* ETERNA c/o Vector Services - 13 Denington Road - Wellingborough - Northants NN8 2RL - ✆ : 0933 279 300

* ETERNA 4 rue de massacan - 34 740 VENDARGUES - FRANCE - ✆ : 010 (33) 67.87.32.12





YOU ENTER THE HALL OF THE KING

85%

Enter the Realm

... fast arcade action

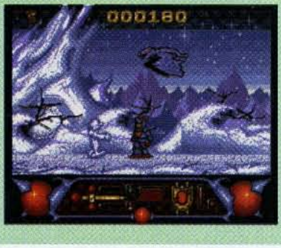
Price: £24.95
Supplier: The Fourth Dimension, 1
Percy Street, Sheffield S3 8AU.
Tel: 0742 769950

WHEN I first ran Enter the Realm, it opened with some very impressive Aztec-style music playing over the title page and then crashed with a *No room in RMA* message. The manual was not much help as all it said was that you might need to allocate memory via the task display.

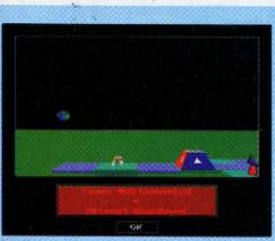
However a quick phone call brought replacement discs of the latest version which promptly crashed in the same way. I did manage to get the game to run by unplugging the WaveSynth and Percussion modules but these affected the sound by having whisper *Game Over* messages appearing in place of one of the monster's sounds.

Help finally appeared in the form of a configuration disc which is not game-specific, it unplugs (in software) most unnecessary modules and will put them back afterwards.

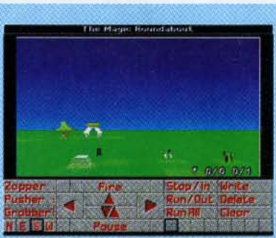
The Fourth Dimension claim that this is the first game to feature true parallax scrolling on Acorn's 32-bit computers and it *is* impressive with several layers of action. As you move the mountains in the background move slowly, with the foreground moving faster giving quite a realistic 3-D effect.



The playing technique involves rushing through the scene shooting the baddies before they get you and leaping over giant bouncing snowballs. Dodging falling icicles and large eggs that turn into nasty flying creatures, the action is fast and furious. You can get advanced warning of some monsters as you can hear them



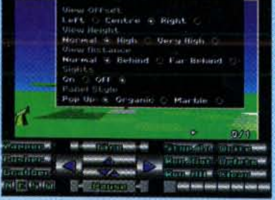
Taking the long view



Magic roundabout

Towers of Babel

Price: £24.95
Supplier: Cygnus Software
Engineering Ltd., 11 Newarke
Street, Leicester LE1 5SS.
Tel: 0533 559711

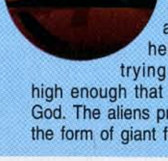


Setup View

View Offset
Left ○ Centre ● Right ○
View Height
Normal ● High ○ Very High ○
View Distance
Normal ● Behind ○ Far Behind ○
Sights
On ○ Off ●
Panel Style
Pop Up ● Organic ○ Marble ○

A new view

BACK in May 1991 we previewed Tower of Babel from Cygnus, a conversion from the ST/Amiga that has taken a while to get to your machines. But it's here now, so let's see what we've got.



To recap, the scenario has its origins in the distant past when aliens decided to help poor earthlings trying to build a tower high enough that they could talk to God. The aliens provided robots – in the form of giant four-legged spiders – to help and teach.

Unfortunately, after some interesting historical events, the humans turned against the robots and began setting traps for them and generally causing a nuisance. Now you must help the robots through the tower and ultimately to get back to their home.

The game is best described as a 3D-graphic puzzle maze. There's no luck involved, you must simply find the way through each level collecting *Klondikes* – energy modules – and zapping a specific number of other objects. There may also be a time limit.

There are three types of robot: The Zapper, which can destroy zappable objects; The Pusher, that can move pushable objects; and the Grabber, that collects the klondikes and can operate other items.

The robots can be operated individually using simple controls but they can also be programmed with up to eight instructions which can be initiated one at a time or all together.

Opposing you is a wide selection of weird and wonderful things: Fixed and rotating zappers and pushers, worms, watchers, hoppers, lizards, mines, time bombs, blocks, glass blocks and prisms – to name but a few.

Each level is composed of nine stages and you must perform a specific task for each stage. Once through it you can move up to the next level. The sheer numbers of different objects – all having various abilities and actions – can be bewildering to the beginner.

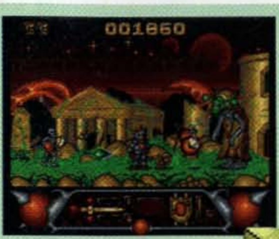
But there's a block of nine tutorial stages which – along with a section of the 48-page manual – take you through all the fundamentals. After that it's up to you.

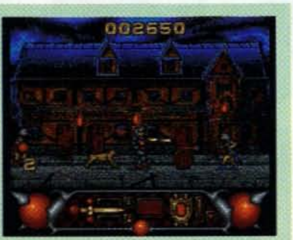
The software also incorporates a complete tower designer which is very easy to use although designing a good set of levels and stages requires some thought and skill.

If you own non-ADFS filing systems you will need to modify the !Run file if you want to use your alternative media for saving designed towers. But this is described in the !Run file itself and is fairly simple.

Tower of Babel is a fascinating game and will keep you absorbed for hours.

Lazarus





before they appear – just part of the innovative sound system.

As you progress you can pick up various objects to help you. Crystals gems and gold bags add to your score whereas hearts, shields and extra lives prevent your premature demise. Weapons are available to increase the potency of your attack and a freeze spell allows a short time of undisturbed freedom.

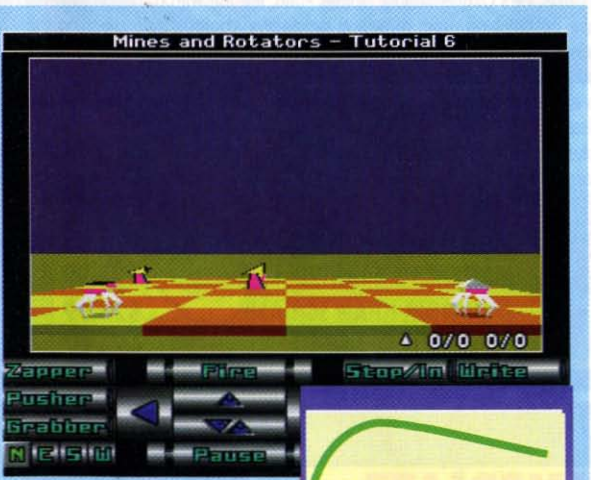
The pace dramatically changes when you encounter a building – if it is displaying a large Enter sign with an arrow you can take a peek inside. What you see is generally a still picture with several option buttons like search, talk and give.

Here you are saved from the relentless attack of increasingly diverse foes and can engage in a little adventure-like conversation. This will give you clues to solving further levels and there are seven in all.

The game is not easy to start off with and should hold the interest for quite some time. The graphics are superb and closely approach that of many arcade machines.

One major criticism is that when you are killed you have to go through a minimum of 20 seconds worth of disc loads and introductory graphics before you can have an other go. It's much longer if you don't know the correct sequence of Return and space bar presses.

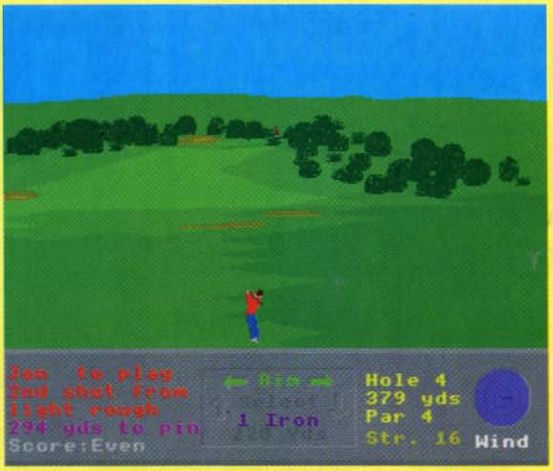
Mike Cook



Practice makes perfect

Tower of Babel

Software SCENE 80%



Microdrive World Edition

... more tee vicar?

Price: £29.95
Supplier: CIS, Suite 2a, 436
Essex Road, London N1 3QP.
Tel: 071-886 3340
Requirements: Risc OS

FOLLOWING the recent trend for releasing golf games, comes the World Edition of Microdrive.

What you actually receive, is a disc which contains various extra courses to play, in addition to the two provided with Microdrive itself. The extra courses include Olympia National and Val do Lago and others from around the world.

If you want, you may see a course overview and then move on to choosing the course you wish to play, enter details of the player's names and skill levels and you can wheel your golf bag down to the tee.

Once there, you must make various decisions regarding your first shot. Using the indicators at the bottom of the screen, you can see how far it is to the hole, wind, scores and other attributes. The graphics at this stage are neat but not brilliant and you are represented by a small player standing next to your golf bag.

The mouse is used to choose the club required and at times this was a little tedious. It was only after a while that I realised that the maximum distance that the club chosen can hit, is shown in extremely light lettering below your club selection – a little annoying.

Using the mouse again to hit the ball and choosing varying speeds of clicking the mouse in order to give the shot hook or slice, the ball zoomed off. The use of the triple-click system is completely unique in the computer golf world where power meters usually rule – and it certainly adds to the realism.

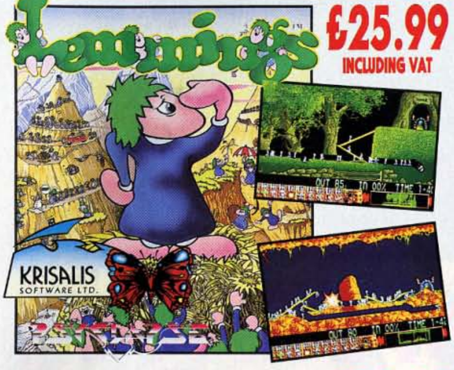
All golf games follow much the same rules, and Microdrive is no exception. Bunkers and rough all add to the difficulty of the game and when you do finally reach the greens, putting the ball is quite pleasing when the ball rattles into the hole.

The courses that are provided give you a wide array of challenges and obstacles such as water do appear on quite a few. MicroDrive World Edition, is more of a game than a simulation and is good value for money. Of special note are the trees – they look real and not like sticks with blobs on them.

Brett Colley

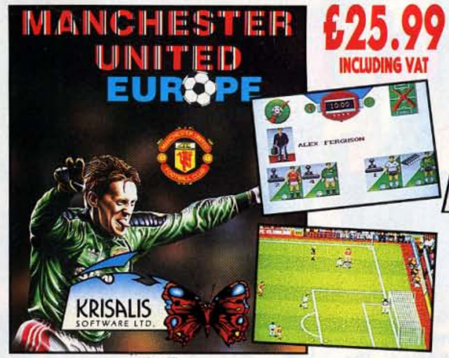
Software SCENE 65%

BBC A3000 & ARCHIMEDES SOFTWARE



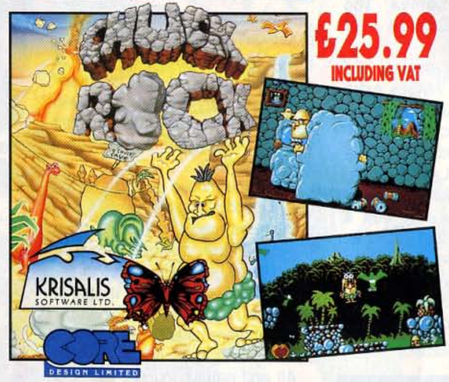
Lemmings
KRISALIS SOFTWARE LTD.
PSYGNOSIS

£25.99
INCLUDING VAT



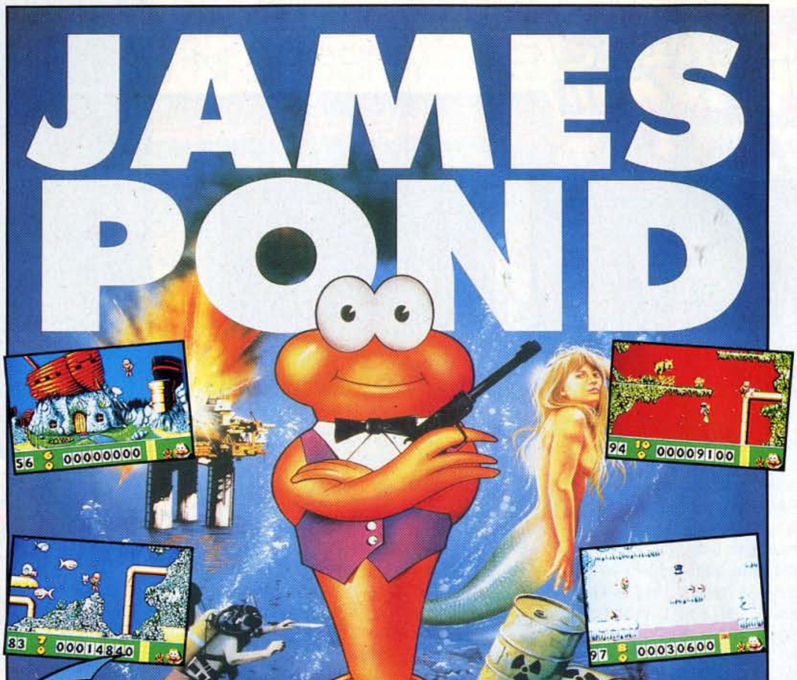
MANCHESTER UNITED EUROPE
ALEX FERGUSON
KRISALIS SOFTWARE LTD.

£25.99
INCLUDING VAT



CHUCK ROCK
KRISALIS SOFTWARE LTD.
CORE DESIGN LIMITED

£25.99
INCLUDING VAT



JAMES POND
KRISALIS SOFTWARE LTD.
UNDERWATER AGENT
MILLENNIUM

£25.99
INCLUDING VAT

When danger threatens in the icy deep, when hope seems lost and the end looks nigh, there's only one fish with the guts to save the day. Now's the time to call James Pond - underwater agent. He's fearless, he's clever, he's Ozone-friendly. James Pond, the fish with a mission (twelve missions, in fact), will take on anything, from retrieving radioactive canisters and plugging the leaks in oil tankers to rescuing doomed lobsters, mermaids and rare orchids from extinction.

Now you can take the part of James Pond in this all-action arcade adventure. With twelve levels and lots of secret areas to explore, brilliant graphics and game design by Chris Sorrell, this sub-sea spectacular is not to be missed!

12 momentous missions plus lots of bonus chambers. Choice of weapons or just blow up baddies with bubble action! So many different enemies and pickups you'll wish you had eight tentacles!

OTHER GREAT GAMES FROM KRISALIS

MAD PROFESSOR MARIARTI............£19.99
MANCHESTER UNITED 1....................£25.99
JAHANGIR KHAN SQUASH..............£25.99
BOXING MANAGER.........................£25.99

HOW TO ORDER

TELEPHONE

0709 372290
ACCESS & VISA ACCEPTED

RETAILERS
CONTACT OUR EXCLUSIVE DISTRIBUTOR
GREYHOUND MARKETING LIMITED
Tel: 0532 621111

LETTER/FAX

SIMPLY SEND A LETTER GIVING DETAILS OF THE GAME(S) YOU WOULD LIKE, YOUR NAME AND ADDRESS, AND PAYMENT BY CHEQUE, POSTAL ORDER, OR BY GIVING YOUR ACCESS OR VISA CARD DETAILS INCLUDING THE EXPIRY DATE

IMMEDIATE DISPATCH

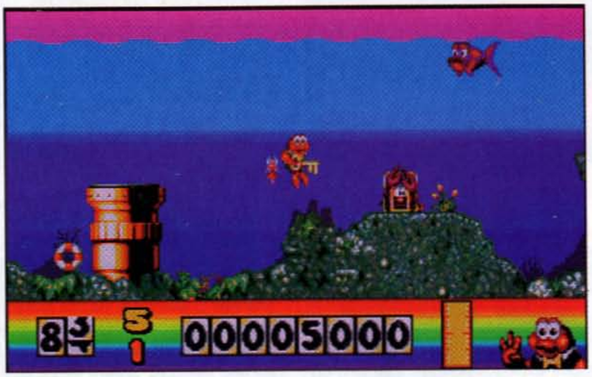
ALL ORDERS ARE DISPATCHED BY FIRST CLASS POST IMMEDIATELY. CARRIAGE IS PAID BY US IN THE UK. (ORDERS FROM OVERSEAS ADD £3 PER PRODUCT).

FULLY GUARANTEED

IF FOR ANY REASON DISKS SUPPLIED BY US BECOME FAULTY WE WILL REPLACE THEM STRAIGHT AWAY. SIMPLY RETURN THEM TO US ENCLOSING YOUR NAME AND ADDRESS.

krisalis software Ltd, Teque House, Masons Yard, Downs Row, Moorgate, Rotherham, S60 2HD. Tel: 0709 372290 Fax: 0709 368403

85%



James Pond

...double bubble

LISTEN very carefully, I will say this only once. You have a mission – well 12 of them really – which is dangerous and requires our top agents, the double bubbles, to deal with the threat to the aquatic world as we know it. Are you ready James?

You are Pond, James Pond, and any similarity to the Ian Fleming hero is purely intentional. Puns abound in these humorous adventures set among the pollution disaster areas of the planet.

Games with a green message have definitely caught on over the past 12 to 18 months. James Pond was extremely popular on the ST and Amiga earlier in the year and the polish, addictiveness and, above all, humour should stand it in good stead on the Archimedes.

So let's get down to basics. This is an arcade adventure with excellent graphics and music and a lot more to it than you'd first think.

James is a fish, albeit a fish with a great deal of aplomb and *joi de vivre*, he is still a fish. The Walther PPK has been replaced by his bubbles, but he is dexterous, can breathe out of water and, above all, is suave and sophisticated. His motto is: *Vita canis est.*

The first mission features six caged lobsters. In the role of James you must collect the keys scattered over the sea bottom, before the lobster fishermen haul in their catch. Uncaged lobsters are not very friendly and neither are the other fish you meet.

Bubbles with trap them and swimming over these will turn them into a motley collection of treasure – from carrots to teapots – each scoring a different amount.

In all the missions there are subterranean caves containing treasure or evil sea monsters and quite often the solution to a particular level. Do keep an eye on your fishometer which shows how much fishy life you have left.

You emerge from a pipe down which you can disappear again at any time. This will take you home where you can deposit any items you think you might need in the future. Who knows when a top hat will come in handy?

After you have completed your mission, other pipes will unlock. Sometimes there is just one exit, but some levels have two or more. Each will take you to a different mission.

The bar at the bottom of the screen tells you how you're doing. A picture of James gets increasingly concerned as your three lives disappear – you can tell how many lives you've got left by how many fingers he's holding up.

97
00019870

The other icons represent score, time left, how many items you've collected and how many remain. You can complete your mission without collecting everything in sight. But if you score 100,000 you'll receive an extra life.

Puns abound. Just take a look at the names of some of the levels: From Sellafield with Love, The Fish with the Golden Bar, Leak and Let Die, Dr Maybe and so on. Most concern a pollution risk: Rescuing fish before they are mutated by nuclear waster, nobbling lager louts with dumped toxic waste canisters, patching up leaking tankers, saving the rainforest and protecting the lost city of Atlantis from pillagers and many more.

As you progress through the missions your opponents become more deadly – vampire fish and ghosts, I found particularly tricky. There are also other creatures with a strange array of characteristics.

Price: £25.99
Supplier: Krisalis, Teque House, Masons Yard, Downs Row, Rotherham S60 2HD.
Tel: 0709 372290
Requirements: Risc OS

A fairy – who looks just like Tinkerbell – appears from time to time and is very irritating. I eventually worked out that she was rather useful, protecting me from everything for a limited time. I'll let you work out how to find her though.

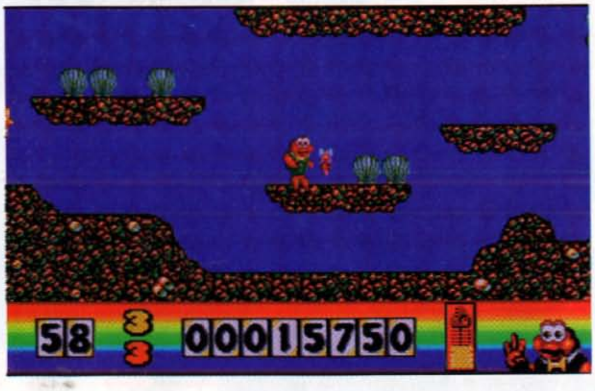
On some screens if you venture too near the surface a stork will carry you to the opposite side of the screen. While on others if you jump out of the water, bricks will appear which drop goodies for you to collect.

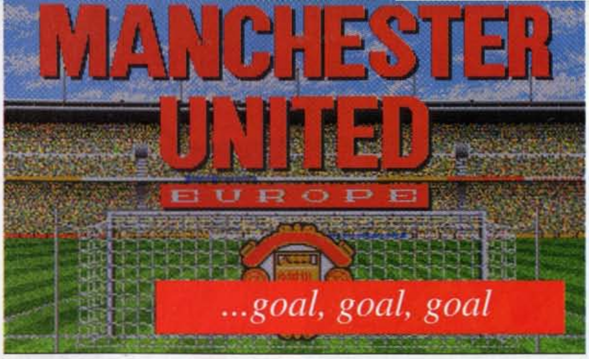
All sorts of aquatic creatures can be found in the sea. My favourite was a green starfish, who was very helpful when I was blowing up the leaking oil platform. But there was not enough bubble gum for my liking. Don't be tempted by the Jack Daniels, as drunk agents aren't the most successful.

Sadly there are no save or password options but don't think that everything will be the same each time you play. Not only do the baddies alter what they turn into once bubbled, but the things you are looking for change position.

James Pond is very easy to start with, but gets progressively harder. There is a lot to explore and the graphics and attention to detail is superb. I was not overwhelmed when I first started playing, but now I'm well and truly hooked.

Pam Turnbull





Price: £25.95
Supplier: Krisalis, Teque House, Masons Yard, Downs Row, Moorgate, Rotherham.
Tel: 0709 372290
Requirements: Risc OS

Software SCENE
80%

FOLLOWING the success of the original Manchester United, Krisalis have now released the European version of the game. But now you play the role of both manager and player for Manchester United FC.

Booting the disc demonstrates some of the graphics and sound capabilities that Krisalis are known for. A brief graphical rundown of your system configuration – memory and processor – is shown, more for presentation than for necessity.

Choose the language you want and which of the three European trophies you wish to play for: European, UEFA or Cup Winners Cups, and the main menu options will appear.

There is a wide array of attributes which you can change, using a rather neatly drawn football. The manager's name, skill level and team line-up can all be edited. The length of play for each match can be adjusted too, as well as which role you'll be playing: Manager or player. If you prefer to compete against a friend, there's a two-player game or you could just battle it out against the computer.

Before playing a cup match, you can opt for a friendly against any number of teams. This is recommended as it gives you an insight into the arcade side of the game as well as some practice. The teams move into position and, with fingers poised, you wait for the referee's whistle. The playing area is neat and accompanied by a cheering crowd. Your player changes to always be the one nearest the ball.

When you manage to get the ball, it's best not to go straight for the goal – pass the ball to other players in your team.

When your opponents get the ball, a sliding tackle is the best approach. But beware of the man in black – the referee – as if the tackle is not successful, you'll be cautioned.

The different ways players can be controlled is a nice touch. You can modify the shooting of the ball with a little aftertouch to curl it, although these sort of shots do take a bit of practice.

All of the usual corner kicks, free kicks and such like adhere to the real game exactly and the referee even realistically controls the match, showing a yellow card where necessary

---

Pandora's Box

...onward and upward

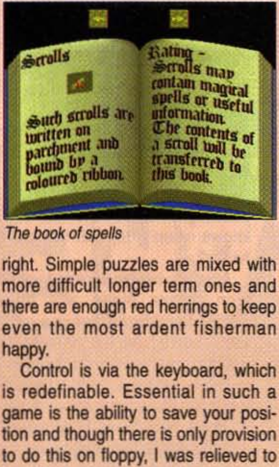
Price: £24.95
Supplier: 4th Dimension, 1 Percy Street, Sheffield S3 8AU.
Tel: 0742 769950
Requirements: Risc OS

AT FIRST glance this game reminded me very much of the BBC classics, Alien 8 and Knight Lore with a touch of Spellbinder thrown in for good measure. The quality of graphics, scrolling and exquisite design is impressive.

You are a mage, complete with star spangled robes and pointed hat, with a whole city and countryside full of all sorts of dangers to explore. You have a mission in life of course, but are quite amenable to helping others who in turn could proffer some advice or even a cash reward.

You home is in a traditional walled city manned by thirsty guards. The market is full of disreputable characters, but the baker and blacksmith are more respectable. While carrying out chores for these pillars of the community you can loot and rob homes of the rich and poor alike. Be warned, contact with other townsfolk will drain your energy and nine bob notes don't grow on trees.

Expert arcade adventurers might find this a little easy going. But I feel that the difficulty level is pitched just right. Simple puzzles are mixed with more difficult longer term ones and there are enough red herrings to keep even the most ardent fisherman happy.


Scrolls

Such scrolls are written on parchment and bound by a coloured ribbon.

Rating - Scrolls may contain magical spells or useful information. The contents of a scroll will be transferred to this book.

The book of spells

Control is via the keyboard, which is redefinable. Essential in such a game is the ability to save your position and though there is only provision to do this on floppy, I was relieved to see it.

The control panel is simple. Next to an icon of your visage is a lifeline taking you to your skeleton. As you take damage this lines goes red. But rest away from ferocious townsmen, macabre lemmings, uncouth tribesmen and manic monks, and you'll recover.

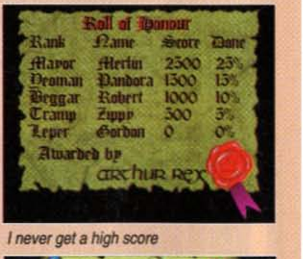
On the other hand you could take a potion or make one yourself with the parchment recipes which your clients are pleased to present you with.

Your score appears on the control panel, but the number remains at 0000 until you do something very important. The only other icon is a pair of hands showing one of the eight objects you can carry at once. You cycle through and choose these with the cursor keys, while activating them is done via the right Alt key.

My only niggle is that some of the sprite overlapping is not very good causing interference and distortion. This is short lived and doesn't affect the gameplay.

Once you have solved the puzzles set by the townsmen, you'll only have the shopping to do for the Alchemist. Surely a touch of mushroom picking can't be that dangerous? But don't forget anything as the guards are not particularly understanding.

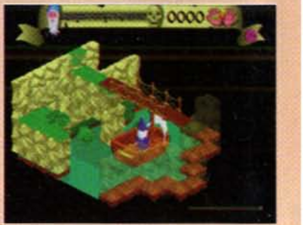
Life outside the walls makes the town look like a haven and it is here where you'll find the contents of


Roll of Honour

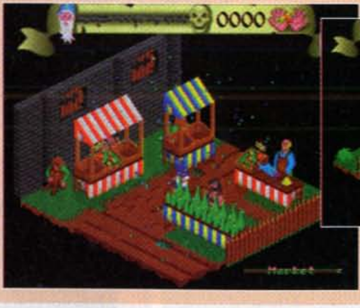
Rank	Name	Score	Done
Mayor	Merlin	2500	25%
Yeoman	Pandora	1500	15%
Beggar	Robert	1000	10%
Tramp	Zippy	500	5%
Leper	Gordon	0	0%

Awarded by
Arthur Rex

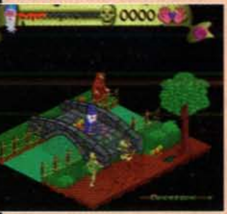
I never get a high score



Enter the depths



The market



In the country

and advising players on misconduct.

When either team scores a goal, a replay of the steps through to the goal can be viewed at varying speeds. At any point in the match you can control your substitutes at the side of the pitch, warm them up by making them run up and down, and wait for a coach to hold up a card so that you can make your choice of player to bring off.

At the end of play, the final score is shown and you are returned to the management section to make any changes to your team.

The player and crowd detail are superb, while the options to control the players using the RTFM or the serial port joystick make the playability of the game very good.

I would like to see the instructions refer to the Archimedes keyboard and joystick controls on paper rather than in a file on disc. All in all though, Manchester United Europe is a worthy addition to any collection.

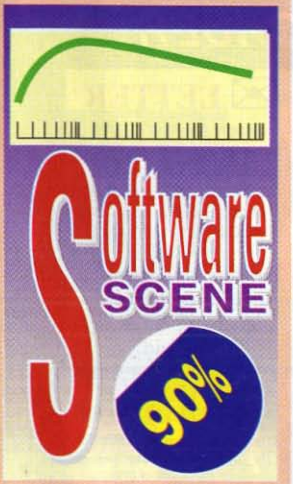
Brett Colley

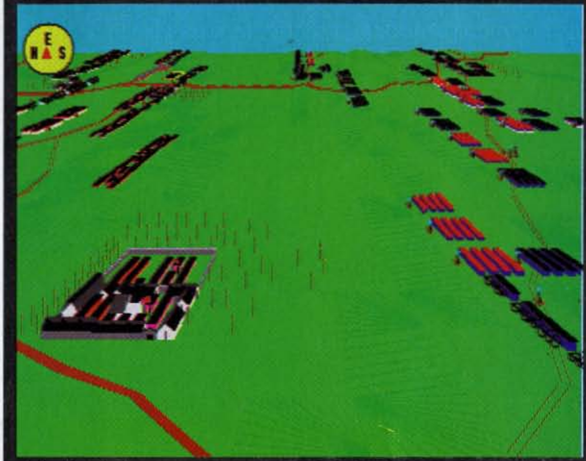
Pandora's box. Medicine is vital as is a good supply of armaments, not to mention a good dexterous pair of hands to manipulate the mage around mines, castles and traps. Switches will have to be operated and moving iron spikes avoided.

Success comes in the form of Merlin – what else could you be called – finally thwarting the evil mage who has upset the balance by opening Pandora's Box. Through dangers untold, and with the four amulets you have managed to acquire, you can seal the box again.

Good to look at and great to play – what else could you want?

Teri Paul





A view from the top

Waterloo

...rewrite history

Price: £25.95
Supplier: Turcan Research Systems, 83, Greencroft Gardens, West Hampstead, London NW6 3LJ.
Tel: 071-625 8455
Requirements: Risc OS

AS a student of history, I'm quite used to the kind of speculation that comes from extrapolating a vital change to some historical event.

For that reason, the name Peter Turcan already meant something to me since I have enjoyed his program based on the battle of Borodino on the Atari ST. So I was especially pleased to find that he had converted the battle of Waterloo to the Archimedes format.

Any battle or wargame simulation needs very careful handling: In particular, a precise and accurate knowledge of the circumstances surrounding any historical event is essential. Much more work goes into an historical simulation than is needed where events are imaginary and a certain arbitrariness of approach can be taken.

The events that took place during the spring and early summer of 1815 are of particular fascination to many. The speed Napoleon moved back into France and gained followers from the army is little short of astonishing. It is one reason why it took so long for the allies to get their act together.

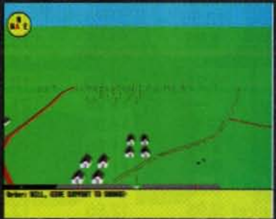
Most reasonable people still find it hard at times not to wonder why the allies won, given Napoleon's speed and determination. The answer, crudely, lies in the arrival of the Prussians under Blucher, combined with the fact that the village of Hougoumont was held by the allies while absorbing the energies of a considerable number of French soldiers.

Peter Turcan is a military historian and the booklet accompanying the program disc, summarises the events in a way which provides vital information for any enthusiast who doesn't know the main sequence of events on that fateful day, 18th June 1815.

The playing options are many and varied. They include the option to save the game automatically every hour – very useful.

Another option which I greatly appreciated was watching the original battle. I recommend this facility to anyone who wishes to familiarise themselves with the battle as a whole before starting to try and change history.

You can choose which Commanders-in-Chief to play, your opponent being a friend or the computer. The game starts with the commencement of battle at 11.30am and each turn is a 15 minute segment of the battle. During that time you can give up to eight orders.



A peaceful village

These orders are at the heart of the whole game. Sent from the Commander-in-Chief down through the chain of command, you can only give direct orders to those immediately below you. These orders are then acted upon, but if no orders are given the Corps Commanders will act on their own initiative. This adds a sense of realism to the whole game.

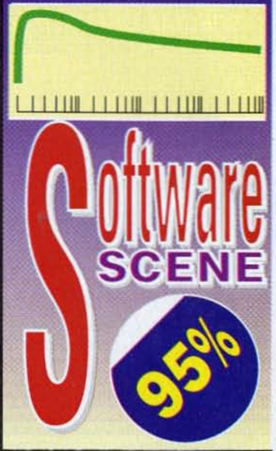
Realism is increased as orders can be misinterpreted, as well as being rendered out of date because of the time it takes the message to arrive. This is an important factor in the whole game. Let me give an example: Supposing you ask one of the Corps Commanders for a status report and he then has to obtain the information from the various regiments involved.

This request has to pass through several links in the chain in both directions. By the time the information has been passed back it could well be out of date and this in turn could affect your strategic thinking. In any battle – even today – communications are a vital link.

Another very helpful feature is the way you can view the battlefield. It is possible to see a couple of miles in any direction and make an assessment of what is going on. It's also possible to move around the battlefield to find out what is going on elsewhere, gaining more up to date information than messages sometimes give.

For strategy buffs this program is a must. It ought to find a place, too, in sixth-form history work. I have a son at University who gained a grade A History A-level by specialising in one aspect of his period. This program provides a classic opportunity to do likewise. Definitely recommended.

Mad Hatter



The Fourth Dimension

SPECIAL OFFER: If you buy 3 or more products directly from us you may deduct £10 from the total cost

Chopper Force (early version)

Grievous Bodily 'ARM

Chocks Away Compendium

Boogie Buggy

Enter The Realm

Saloon Cars

X-Fire

ARCtist

ACORN BBC A3000 & ARCHIMEDES SOFTWARE

The following software is compatible with the BBC A3000 and ALL Archimedes computers

ARCADE GAMES

Grievous Bodily 'ARM *(Hopefully late Nov.'91)*	24.95
Cataclysm *(Hopefully late November '91)*	24.95
X-Fire *(Hopefully mid November '91)*	24.95
Boogie Buggy *(Arcade Graphics & Gameplay)*	24.95
Nevryon *(Unbelievable Graphics & Gameplay)*	19.95
Inertia *(Isometric Arcade Action)*	19.95
Apocalypse *(3D Mega Game - 9 Planets)*	29.95
Drop Ship *(Superfast Arcade Action)*	19.95
Arcade Soccer *(World Cup 1-24 Players)*	19.95
The Olympics *(6 Varied Events - 1-6 Players)*	19.95
Quazer *(Furious Arcade Action)*	11.95

EDUCATIONAL SOFTWARE

(from Triple 'R' Education)

Picture Book	19.95
Money Matters	19.95
Data Word	19.95
Target Maths	19.95
Converta-Key	19.95

3D SIMULATIONS/GAMES

Chopper Force *(Hopefully March '92)*	t.b.a.
Spitfire Fury *(Hopefully February '92)*	t.b.a.
Saloon Cars *(The Ultimate Driving"Game-ulation"!)*	24.95
Break 147 & Superpool *(Incredibly Realistic Snooker and Pool Simulator)*	24.95
Chocks Away *(Biplane Sim. for 1 or 2 Players)*	24.95
Chocks Away Extra Missions *(26 Extra Missions plus some Superb Enhancements)*	19.95
Chocks Away Compendium *(Chocks Away + Chocks Away Extra Missions)*	39.95
Powerband *(Superfast Formula 1 Grand Prix)*	24.95
E-Type Compendium *(3D Classic Car Racing)* *(E-Type + Extra 100 Miles + Designer)*	24.95
Holed Out Compendium *(3D Golf 1-6 players)* *(Holed Out + Extra Courses Vol.s 1 & 2 + Designer)*	24.95

GRAPHIC ADVENTURE

The Wimp Game *(Unique Graphic Adventure)*	19.95

ARCADE ADVENTURES

The Exotic Adventures of Sylvia Lain *(Release date hopefully mid November '91)*	24.95
Pandora's Box *(Stunning Graphics & Gameplay)*	24.95
Enter The Realm *(Supersmooth Arcade Action)*	24.95
Pysanki *(Futuristic Arcade Adventure)*	19.95
Man-At-Arms *(Medieval Arcade Adventure)*	19.95
U.I.M. *(Massive 3D Action Adventure)*	29.95
White Magic *(Magical Arcade Adventure)*	19.95
White Magic 2 + Designer	19.95

COMPILATIONS

The Real McCoy *(4 Game Compilation)* *(U.I.M., Arcade Soccer, White Magic & Quazer)*	29.95
The Real McCoy 2 *(4 Game Compilation)* *(Apocalypse, Holed Out, The Olympics & Inertia)*	29.95

SPEECH & ART SOFTWARE

ARCtist *(Easy to use Professional Art Package)*	24.95
ARCticulate *(The Animated Speech Synthesizer)*	24.95

BBC MICRO, MASTER, COMPACT & ACORN ELECTRON

Title	BBC B & Electron Cassette	BBC B & Master 5¼" Disc	Master Compact 3½" Disc
Q-Master *(Realistic Pool Game)*	---	14.95	15.95
Picture Book *(Educational Software)*	12.95	14.95	15.95
Money Matters *(Educational Software)*	12.95	14.95	15.95
Data Word *(Educational Software)*	12.95	14.95	15.95
Target Maths *(Educational Software)*	12.95	14.95	15.95
Converta-Key *(Educational Software)*	12.95	14.95	15.95
E-Type *(3D Classic Car Racing)*	9.95	14.95	15.95
Nevryon *(Pure Arcade Action)*	---	14.95	15.95
Inertia *(Isometric Arcade Action)*	9.95	12.95	13.95
U.I.M. *(Massive 3D Action Adventure)*	---	19.95	21.95
Holed Out *(3D Golf for 1 to 4 Players)*	12.95	14.95	15.95
Holed Out Extra Courses Vol.1	9.95	11.95	12.95
Holed Out Extra Courses Vol.2	9.95	11.95	12.95
Arcade Soccer *(Fast Action - 1 or 2 Players)*	9.95	12.95	13.95
White Magic *(Magical Arcade Adventure)*	9.95	12.95	13.95
White Magic 2 + Designer	9.95	12.95	13.95
The Art Studio *(Easy to Use Art Package)*	9.95	12.95	---

HOW TO ORDER

TELEPHONE

☎ (0742) ☎

769950 or 700661

ACCESS & VISA Accepted

24 Hour Service 7 Days a Week

SAME DAY DESPATCH

All orders are despatched immediately by 1st Class post. Carriage is paid by us in the U.K. (Overseas orders add £3 per product).

FULL DETAILS OF ALL OUR SOFTWARE ARE AVAILABLE ON REQUEST & ARE SENT WITH ALL ORDERS

✉ LETTER

Simply send us a quick letter telling us the software you require, your name and address, and payment via cheque, postal order or ACCESS or VISA card details.

The Fourth Dimension,
1 Percy Street,
Sheffield, S3 8AU,
England.

NO Quibble GUARANTEE

If any of our discs ever become faulty (for whatever reason) we will replace them free of charge immediately. Simply return them to us with your name and address.

The Fourth Dimension

SPECIAL OFFER: If you buy 3 or more products directly from us you may deduct £10 from the total cost

Pandora's Box

ARCticulate

Spitfire Fury (early version)

Cataclysm

Nevryon

Break 147 & Superpool

The Exotic Adventures of Sylvia Lain

For Full Details of All Our Software...

☎ RING: (0742) 700661 or 769950

and ask for our brand NEW...

Includes:

- **Over 100 full colour Archimedes screenshots**
- **Detailed product descriptions**
- **Independent magazine reviews**

FREE

BBC A3000 & ARCHIMEDES

LARGE 16 PAGE FULL COLOUR CATALOGUE

***PLUS** FULL details of our exciting range of innovative **EDUCATIONAL** software*

AUTHORS

If you are writing a program and/or have any game ideas then please send them in for evaluation. We pay top royalties and can offer the best game development, technical support and promotion.

Your copy will be sent to you immediately free of charge by 1st Class post. If you ring outside office hours simply leave your name and address on one of our answering machines.

Archimedes Specialists

TELETEXT ADAPTOR

ADD TELETEXT TO YOUR COMPUTER

- Computer controlled tuning
- Download and save pages
- Unique composite video & audio output
- High performance T.V. front end
- Fully mains powered unit in metal case
- Upgrades available for existing users
- RISC-OS version multitasks
- User programmable via SWIs & OS calls

The ARC/3000 version contains many powerful features making it very easy to use, i.e. point and click at page numbers. SAE for details

Universal Teletext Adaptor
AERIAL
DATA
AUX
POWER

FURTHER DETAILS ON REQUEST

A3000/ARC. PRICE INCLUDES:
- Podule socket lead
- User notes
- TTX V2.13 Software

£94.00 Inc. P&P

BBC B & MASTER. PRICE INCLUDES:
- User port lead
- SATS Software
- User notes

£94.00 Inc.P&P

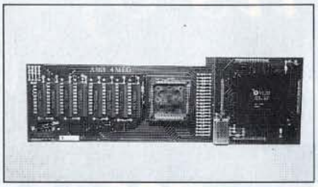
A305/310 4 MEG MEMORY UPGRADES

- Low power 8 chip design
- DIY fitting, just plug in
- Accepts our ARM 3 processor

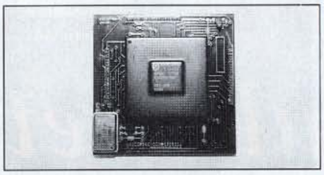
£243.00 Inc. P&P

***SPECIAL OFFER*: Fitted with ARM 3**
(as illustrated below)

£443.00 Inc. P&P



ARM 3 PROCESSOR



- Cache operation at 25 MHz
- RISC-OS Armspeed software
- DIY plug in design
- Fits A300/400 series
- 3-5 times speed increase

£195.00 Inc. P&P

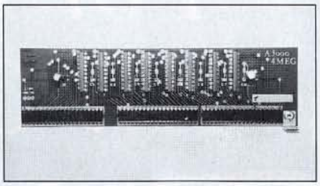
A3000 MEMORY UPGRADES

- Low power design, only 8 chips
- Bare Board, 1Mb or 4Mb
- Easy to fit just plugs in
- Screw fixed for reliability
- PCB size only 175x50mm

BARE BOARD **£23.00** Inc. P&P

1 MEG **£51.00** Inc. P&P (Gives 2 Meg total memory)

4 MEG **£139.00** Inc. P&P (Gives 4 Meg total memory)



UVIPAC EPROM ERASER

- Mains Powered
- Cost effective way to erase Eproms
- Up to three Eproms can be erased at any one time
- Available with or without automatic timer

EPROM ERASER **£23.00** Inc. P&P

WITH TIMER **£27.00** Inc. P&P

MEMC1A

MEMORY CONTROL UPGRADE
(2 CHIP SET)

- Boost speed by 10% on A310/440
- Recommended for ARM3 use
- Essential for SCSI & floating point users

£38.00 Inc. P&P

UVIPROM EPROM PROGRAMMER

- For BBC B and Master
- Programs 2764, 27128 & 27256 (Inc. CMOS)
- 21 or 12.5 volt programming
- High quality ZIF socket
- Fast or slow algorithm

£33.00 Inc. P&P

FOR FURTHER INFORMATION TELEPHONE 0635 524008 OR 0622 747416

HOURS OF BUSINESS: 9.00 AM - 5.30 PM (24 HOUR ORDERING FACILITY)

Prices exclude VAT, but include carriage charges (UK mainland), packaging and insurance

VISA MasterCard

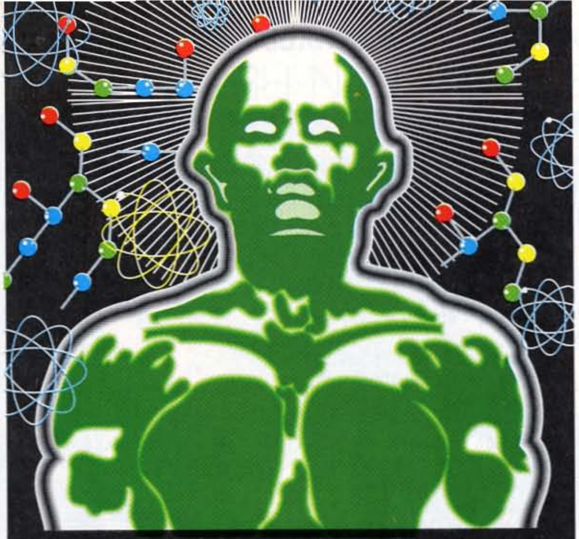
DEALER ENQUIRIES WELCOME

QUANTITY DISCOUNT AVAILABLE

GROUND CONTROL

ELECTRONICS LIMITED

UNIT 7, KINGFISHER COURT, HAMBRIDGE ROAD, NEWBURY, BERKSHIRE RG14 5SJ. TEL: 0635 524008 or 0622 747416 FAX: 0635 528115



The Beeb Body Building Course

More sound advice

Now Mike Cook wraps a sample up in an envelope

WE looked last month at the circuit of our Sound Sampler, so now it's time to see how we can drive it from the 8 bit Acorn machines. As we saw, the sampler connects to the printer port of the 32 bit machines, a fact reflected in the circuit diagram. However, to connect it to the 8 bit machines we attach it to the User Port. This has the advantage that it contains a 5 volt line, so we do not need the battery option.

The figure below shows the connections to the Compact and also the Master and Model B. The connectors are IDC – Insulation Displacement Connector – sockets using ribbon cable.

The view you see is with the cable attached and wrapped round the strain relief clip and the sockets holes pointing upward. Note that on the 20 way plug the bump is pointing away from the cable.

The best way of making up the cable is to snip away the wires you don't need and then roll up the cable and push it through the DIN plug cover. Then wire up to the DIN plug and refit the cover. We are now ready to sample.

Reduced sample

It should be said at this point that the 8 bit machines are slower than their 32 bit counterparts and this limits the sampling rate to about 5KHz. This naturally reduces the quality that you can obtain from the sampler.

Another point is that the 8 bit machines do not have a built in D/A (Digital to Analogue) converter in order to replay the samples. However, we can get round that in two ways – we can use the built-in sound chip or add an external D/A converter.

Using the built-in sound chip was covered by Rafael Jay in the August '91 issue of *The Micro User*. He wrote some conversion routines in order to convert Amiga sound samples.

What you need to do is to convert the sample into 4 bit log values and then feed them to the amplitude control of the sound sampler chip.

If you do this while the chip is producing a very high (supersonic) tone all you will hear is the envelope of the sound, which is the sample that you want.

This technique is remarkable, not for its quality, but for the fact that it works at all.

The sound produced in this way will be recognisable, but will suffer from noise and distortion. Nevertheless you will have sound that can be heard on anyone's machine.

A vast improvement can be produced if you attach an external loudspeaker or feed the sound through a hi-fi system.

On this month's subscription disc are two short samples I have made, along with a program to play them. This is called SFplay and loads in samples S.POP and S.BOB, the latter being me trying to imitate a little bit of the Band Aid Christmas record.

This program is essentially the same as that in the August '91 issue, with a few changes made to reflect the different sample rates.

So how can we prepare sound sample files to be played in this way?

Well, Listing I shows the program – called C&S on the subscription disc – to allow you to sample a sound and save it as a disc file of logarithmic values.

It uses a Mode 1 screen and the same memory space to store the samples. In this way you can see the screen filling up as you take the sample, and also get an idea of the amplitude at various parts of the sample.

Waggling bits

Lines 350 to 690 are the machine code used to read in the sample and store it into memory. If you refer to the timing diagram of the ADC chip in last month's article you will see that this routine waggles the appropriate data bits up and down to make the waveforms.

Data is read in at line 400, as this arrives only one bit at a time it is collected in memory location &70 by first shifting it into the carry and then into the memory, line 410.

When you have taken a sample you can store it on disc by typing D. Any other key will let you sample again. When it is stored on disc two bytes are taken and converted into 4 bit log samples, lines 850 and 860. Then in line 870 the two samples are combined in one byte and stored to disc.

This is quite a slow process and will take about one minute to convert and compress a 20k sample into a 10k file. This file can then be played by Rafael's program using a sample delay, the value of *A%* in his program, of 40.

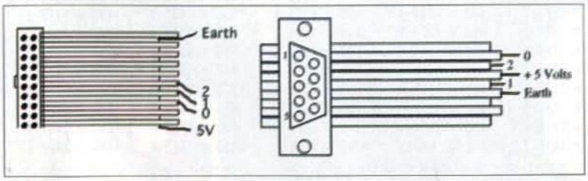
However, impressive though it is, much better quality can be obtained by using an external D/A (Digital to Analogue) converter.

We covered one of these way back in the October '84 Body Build article. The problem with this is that it was designed to be plugged into the User Port and we are using that for the sampler. However, by careful construction of the cable and cutting one link on the board, it can be plugged into the printer port.

The cable is shown in Figure II, again with the connector's socket holes pointing up after the strain relief cables have been put on. The 26 way socket plugs into the Printer Port and the top 9 wires are cut off. The remaining wires are connected to the 20 way socket leaving the bottom three connectors unmade.

Remember the diagram shows the cable after it is bent round over the

➤



BBC Micro connections

strain relief clips, so be careful how you make it. Now on the D/A board there is a link carrying the power to the board just under C1. This needs to be removed and a single wire soldered to connect this to 5 volts on the Sound Sampler.

A good place to get at this is the centre connector at the back of the DIN socket.

Finally the output FA (filtered audio) of the D/A board can be connected to an external amplifier. Alternatively you can connect this to the computer's internal amplifier by using pin 16 of the 1MHz bus.

A simpler way of getting at this connector is to solder a wire to the top of the 10K resistor next to IC69 the User VIA (6522). In this way you have a self-contained unit.

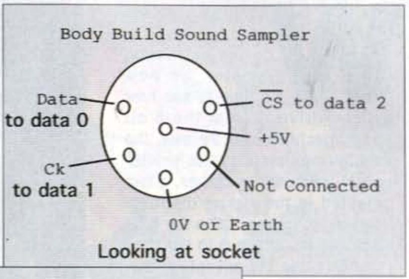
Note that you only have to use a single wire for this audio and the 5 volts because there is a common earth through the computer.

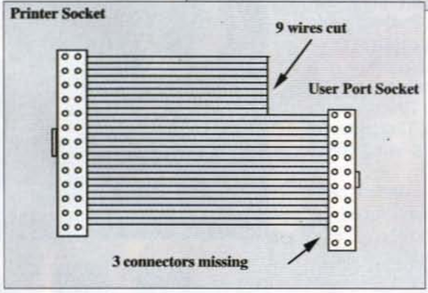
In this way you can use the same sort of software used in my previous sound sampler in January 1986. All you need to do is to change the output address to that of the printer port &FE61 and substitute lines 360 to 490 in Listing I where the sample is read in.

On this month's subscription disc HardSmp is a modification of my original program to sample a signal and then play it back. You can get the common stuttering effect by repeated pressings of the spacebar.

I will convert the other real time effects programs and put them on next month's disc. Meanwhile if you don't get the subscription disc all these programs are available, along with the kits.

- *Next month we will delve behind the Risc OS wimp application on last month's disc to see how we sample sound on the new processors. As you may have gathered it's not as simple as using the 8 bit machines. Have a happy new year.*





Listing I

```
   10 PRINT"BEEB BODY BUILDING COURSE"
   20 PRINT"SOUND SAMPLER"
   30 PRINT"Using D/A on printer port"
   40 PRINT"By Mike Cook"
   50 PRINT
   60 LINK=1
   70 BA=&FE61
   80 FOR PASS=0 TO 3 STEP 3
   90 P%=&A00
  100 [
  110 OPT PASS
  120 .SETUP \ INITILISE
  130 SEI \ DISABLE INTERRUPTS
  140 LDA #&40
  150 LDY #0
  160 STA &FE6B \ ENABLE TIMER 1
  170 LDA #&C0
  180 STA &FE6E \ ENABLE INTERRUPT
  190 LDA #0
  200
STA &FE65 \ START IT OFF
  210 RTS
  220 .GIN \ GET SAMPLE INTO MEMORY
  230 JSR SETUP
  240 .HOLD
  250 LDA &FE6D \ GET INTERRUPT FLAG
  260 BPL HOLD \ LOOP UNTIL TIME OUT
  270 STA &FE6D \ CLEAR INTERRUPT
  280 \ GET SAMPLE
  290 LDX #10:LDA#0
  300 STA &FE60 \ CS AND CLOCK LOW
  310 .SLOOP
  320 LDA &FE60 \ GET DATA
  330 LSR A:ROL &80 \ MOVE INTO MEMORY
  340 LDA #2:STA &FE60 \ CLOCK HIGH
  350 LDA #0:STA &FE60 \ CLOCK LOW
  360 DEX
  370 BNE SLOOP
  380 LDA #6:STA &FE60
  390 LDA &80 \ GET FINAL SAMPLE
  400 STA (&70),Y
  410 INY
  420 BNE HOLD \ GET ANOTHER
  430 INC &71 \ INCREASE MS POINTER
  440 LDA #&7D
  450 CMP &71 \ REACHED LIMIT ?
  460 BNE HOLD \ BRANCH IF NOT
  470 .FIN LDA #&40
  480 STA &FE6E \ DISABLE T1 INTERRUPT
  490 STA &FE6D \ CLEAR ANY INTERRUPTS
  500 CLI \ ENABLE SYSTEM INTERRUPTS
  510 LDA #&80
  520 STA BA \ LEAVE AT DC LEVEL ZERO
  530 RTS
  540 .SOUT \ PLAY A SAMPLE
  550 JSR SETUP
  560 LDA #&62
  570 STA &FE41 \ SPACE BAR LINE
  580 LDA #&03
  590 STA &FE40 \ KEYBOARD ENABLE
  600 .AGAIN
  610 LDA #&80
  620 STA BA \ SET DC LEVEL
  630 .PAUSE
  640 LDA &FE41 \ LOOK AT KEYBOARD
  650 BMI PAUSE \ WATE TILL UNPRESSED
  660 LDA &72 \ TRANSFER START ADDRESS
  670 STA &70
  680 LDA &73
  690 STA &71
  700 .HOUT
  710 LDA &FE6D \ GET INTERRUPT FLAG
  720 BPL HOUT \ LOOP UNTIL TIME OUT
  730 STA &FE6D \ CLEAR INTERRUPT
  740 LDA (&70),Y \ GET A SAMPLE
  750 STA BA \ OUTPUT IT
  760 LDA &FE41
  770 BMI AGAIN \ BACK AGAIN IF SPACE PR
ESSED
  780 INY
  790 BNE HOUT \ GET ANOTHER
  800 INC &71 \ INCREASE MS POINTER
  810 LDA #&7D
  820 CMP &71 \ REACHED LIMIT ?
  830 BNE HOUT \ BRANCH IF NOT
  840 JMP FIN
  850 ]
  860 NEXT
  870 MODE1
  880 PROC_INSTRUCTIONS
  890 CD%=180
  900 ?&FE62=6
  910 ?&FCC7=0
  920 ?&FCC6=CD%
  930 ?&70=&00
  940 ?&72=&00
  950 ?&71=&30
  960 ?&73=&30
  970 REPEAT
  980 PRINTTAB(0,31);SPC(38);
  990 PRINTTAB(0,31);"(S sp R)";
 1000 A$=GET$
 1010 IF A$="S" THEN ?&70=00:?&71=&30:CA
LL GIN
 1020 IF A$=" " THEN ?&70=00:?&71=&30:CA
LL SOUT
 1030 IF A$="R" THEN PROC_RATE
 1040 UNTIL FALSE
 1050 DEF PROC_RATE
 1060 PRINT"DELAY ";CD%;" INPUT NEW VALU
E ";
 1070 T$=""
 1080 REPEAT
 1090 A$=GET$
 1100 IF A$<> CHR$(13) THEN PRINTA$;
 1110 T$=T$+A$
 1120 UNTIL A$=CHR$(13)
 1130 CD%=VAL(T$)
 1140 ?&FE66=CD%
 1150 ENDPROC
 1160 DEF PROC_INSTRUCTIONS
 1170 PRINT"BEEB BODY BUILDING COURSE"
 1180 PRINT"SOUND SAMPLER"
 1190 PRINT"JANUARY 1992"
 1200 PRINT"By Mike Cook"
 1210 PRINT
 1220 PRINT"Options are:-"
 1230 PRINT"S  - Sample input"
 1240 PRINT"sp - Play back sample"
 1250 PRINT"R  - Rate of digitising"
 1260 ENDPROC
```

```
  10 = A5F9 9 | 260 = CCC4 C | 510 = FED2 7 |  760 = D6BB F | 1010 = 4668 F
  20 =  5F9 6 | 270 = 3CCC F | 520 = A105 E |  770 = A4EC 9 | 1020 = 849F 9
  30 = CB74 1 | 280 =    0 F | 530 = 9843 2 |  780 = 6623 A | 1030 =  D2A 8
  40 = FC23 0 | 290 =  439 F | 540 = A71E 5 |  790 = 9A2C F | 1040 = 226C 5
  50 = FF3E C | 300 = F851 C | 550 =  CA4 6 |  800 = AEDD 3 | 1050 =  C94 0
  60 = ACC6 0 | 310 = 197E 6 | 560 = FD9F B |  810 = D0FF 5 | 1060 = 1FA5 F
  70 = 8E1C 9 | 320 = 6988 1 | 570 = A500 D |  820 = 3347 3 | 1070 = 82DB 4
  80 = 7A36 C | 330 = D951 6 | 580 = 4718 0 |  830 = 9A2C 5 | 1080 = BFBA A
  90 = B886 1 | 340 = 11A0 5 | 590 = 9631 5 |  840 = 99DE 8 | 1090 = 77F2 4
 100 = EB9E 9 | 350 = 174A D | 600 =  5E0 8 |  850 = 8B58 5 | 1100 = 4B78 F
 110 = D5D8 3 | 360 = E8A9 9 | 610 = FED2 B |  860 = 2C83 E | 1110 = 4751 1
 120 = F01C 5 | 370 = CCE9 4 | 620 = A105 A |  870 = EA3A 3 | 1120 = C15F F
 130 = 8B8C 9 | 380 = DB42 D | 630 = 4E02 A |  880 = 4EA0 8 | 1130 = 7095 2
 140 = BBBF C | 390 = 816D E | 640 = 34D9 B |  890 = 1FA9 9 | 1140 = 5355 B
 150 = 9CF1 B | 400 = 7F58 5 | 650 = BF43 3 |  900 =   EA C | 1150 = ED0F 6
 160 = 966A 0 | 410 = 6623 B | 660 = CB3E F |  910 = B869 7 | 1160 = 4D94 0
 170 = 2A71 C | 420 = 44AD F | 670 = 5660 7 |  920 = F4ED 6 | 1170 = A5F9 1
 180 =  FFD 1 | 430 = AEDD 4 | 680 = C115 8 |  930 = A921 5 | 1180 =  5F9 6
 190 =  295 C | 440 = D0FF 8 | 690 = 4641 D |  940 = EDA2 4 | 1190 = 1FF7 D
 200 =  7A4 D | 450 = 3347 C | 700 = F6E4 E |  950 = 5623 0 | 1200 = FC23 F
 210 = 9843 5 | 460 = 44AD 2 | 710 = AD15 A |  960 = 12A0 C | 1210 = FF3E 7
 220 = 7130 6 | 470 = 1698 D | 720 = 1245 4 |  970 = BFBA 1 | 1220 =  5D3 7
 230 =  CA4 5 | 480 =  FFD 9 | 730 = 3CCC B |  980 = 2D7D E | 1230 = 4D20 B
 240 = 5D3E 4 | 490 = 3CCC 4 | 740 = 8294 9 |  990 = AFB5 F | 1240 = 324A D
 250 = AD15 3 | 500 =  EBA 2 | 750 = A105 D | 1000 = 77F2 A | 1250 = 8227 A
                                                            | 1260 = ED0F 7
```

NEW

GREAT NEWS for BBC B & MASTER OWNERS!

DragonSoft

EXPLORER

The biggest game ever produced for the BBC

GREAT VALUE!

Technical Features

16k ROM + 2 Disks
BBC B, BBC B+, MASTER
Disk Drive Essential
Playable with 40 or 80 track drives
Playable with single or dual drives
Uses all available sideways RAM
31 x 16 Text Menu Area
256 x 48 4 colour Status Spot Map Area
128 x 128 Full Colour Playing Area
Code and Graphics Paging Systems

Game Features

31 Levels of 31 x 31 Rooms
45 Animated Monster types
32 Weapon types
16 Armour types
29 Wand types
14 Ring types
12 Earring types
15 Scroll types
30 Other Objects
Saved High Score Table
Large Monsters
Some Intelligent Monsters
Fast Play feature
Freeze Game
Sound on/off
Command Menus or
direct 1 key expert option
Automatic Mapping

DO YOU have the skill, courage and endurance to make an epic journey to the ends of the world?

Not just days, but **WEEKS** & **MONTHS** of **ENTERTAINMENT**

To order ***your*** copy of EXPLORER

Return this label together with a
Cheque/Postal Order for £25.99
(incl P&P), payable to
DRAGONSOFT, PO Box 22,
Whitchurch, Shropshire, SY13 2ZZ

Name ____________________

Address ____________________

____

____

____

Postcode ____________________

Listing II

```
   10 MODE 7
   20 PRINT"Body Build Sound Sampler"
   30 PRINT"Jan 1992 Micro User"
   40 PRINT"Sample and save as a Log Fil
e"
   50 DIM CODE% 200,LT%(256)
   60 F$=""
   70 PROC_Cinit
   80 PROC_TAB
   90 MODE 1
  100 REPEAT
  110 CLS
  120 PRINT:PRINT
  130 IF F$="" THEN INPUT"File name for
the sample ",F$
  140 PRINT TAB(0,5)"When sample is comp
leat press"
  150 PRINT"D - To save on disc"
  160 PRINT"    this will take 60 second
s"
  170 PRINT TAB(0,9)"OR any key to sampl
e again"
  180 PRINT TAB(0,12)"Press Space NOW to
 sample"
  190 A$=GET$
  200 CALL SBUF
  210 A$=GET$
  220 IF A$="D" OR A$="d" THEN PROC_CONV
  230 UNTIL FALSE
  240 END
  250 DEF PROC_Cinit
  260 FOR N%=0 TO 2 STEP 2
  270 P%=&900
  280 [
  290 OPT N%
  300 .PINT \ PORT INITILISATION
  310 LDA #&06
  320 STA &FE62
  330 STA &FE60
  340 RTS
  350 .SAMP1
  360 LDX #10 \ NUMBER OF PULSES
  370 LDA #&0
  380 STA &FE60 \ CS AND CLOCK LOW
  390 .SLOOP
  400 LDA &FE60 \ GET DATA
  410 LSR A:ROL &70 \ MOVE BIT INTO MEMO
RY
  420 LDA #&2 \ CLOCK HIGH
  430 STA &FE60
  440 LDA #0 \ CLOCK LOW
  450 STA &FE60
  460 DEX
  470 BNE SLOOP
  480 LDA #&6
  490 STA &FE60
  500 RTS
  510 .SBUF
  520 SEI \ STOP INTERRUPTS
  530 LDA #0 \ SAMPLE BUFFER ADDRESS
  540 STA &72
  550 LDA #&30
  560 STA &73
  570 .SBL
  580 JSR SAMP1
  590 LDX #0
  600 LDA &70 \ GET SAMPLE
  610 STA (&72,X)
  620 INC &72
  630 BNE NC1
  640 INC &73
  650 .NC1 LDA &73
  660 CMP #&80
  670 BNE SBL
  680 CLI \ ENABLE INTERRUPTS
  690 RTS
  700 ]
  710 NEXT
  720 CALL PINT
  730 ENDPROC
  740 DEF PROC_TAB
  750 PRINT"Please wait a second"
  760 V=15/LOG(255)
  770 FOR A%=1 TO 255
  780 LT%(A%)=15-INT(LOG(A%)*V)
  790 NEXT
  800 LT%(0)=15
  810 ENDPROC
  820 DEF PROC_CONV
  830 F%=OPENOUT(F$)
  840 FOR A%=&3000 TO &8000 STEP 2
  850 S1%=LT%(A%?0)
  860 S2%=LT%(A%?1)
  870 S%=S1% OR (S2%*16)
  880 BPUT#F%,S%
  890 NEXT
  900 CLOSE#F%
  910 F$=""
  920 ENDPROC
```

TAKE IT EASY!

If you would like to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User*.

```
 10 = 1092 2    200 = 6583 B    390 = 197E 3    580 = 98D5 8    770 = 9399 B
 20 = 2278 3    210 = 77F2 B    400 = 6988 E    590 = EA45 4    780 = E93A 3
 30 = 2585 A    220 = A030 0    410 = F560 5    600 = AD5C C    790 = 2C83 6
 40 = 24D2 5    230 = 226C C    420 =  328 7    610 = C3CA 9    800 = 1EAA A
 50 = D5C5 B    240 = FD2E E    430 = 56E6 7    620 = 6A12 4    810 = ED0F 2
 60 = C202 6    250 = 36F6 8    440 = 9120 2    630 = 2A8C 1    820 = B46C 6
 70 = A038 B    260 = AC53 3    450 = 56E6 8    640 = 7A33 B    830 = 87A0 C
 80 =  E75 E    270 = C92F C    460 = E8A9 2    650 =  F10 E    840 = BF7A 9
 90 = 7054 A    280 = EB9E A    470 = CCE9 C    660 = 53F8 C    850 = B733 4
100 = BFBA 5    290 = D929 1    480 = 4A02 6    670 = B7B5 8    860 = 819D A
110 = 7A16 0    300 = DDC7 D    490 = 56E6 6    680 =  EBA 7    870 = AD06 1
120 = C102 2    310 = 17BD 1    500 = 9843 4    690 = 9843 7    880 = 484B C
130 = 64F7 8    320 = 76A4 6    510 = 837E C    700 = 8B58 7    890 = 2C83 2
140 =    8 0    330 = 56E6 8    520 = 8B8C 2    710 = 2C83 0    900 = 574F E
150 = 711A A    340 = 9843 D    530 = 9120 F    720 = E354 A    910 = C202 F
160 = ED19 8    350 = 2152 7    540 = 7622 3    730 = ED0F 5    920 = ED0F 7
170 = 3508 5    360 = F1DF D    550 = 2228 5    740 = 9019 E
180 = 38DB E    370 = 2AC4 0    560 = 6603 0    750 = C53D 6
190 = 77F2 8    380 = F851 6    570 = 706C D    760 = B80C 9
```

Listing III

```
   10 MODE 7
   20 PRINTTAB(0,20)"Loading Sound Files
"
   30 *LOAD S.POP 3000
   40 *LOAD S.BOB 5800
   50 MODE7:VDU23;8202;0;0;0;
   60 PRINT"Log Sample File player"
   70 PRINT"By Rafael Jay"
   80 PRINT"Modified by Mike Cook"
   90 PRINT"(C) The Micro User Jan 92"
  100 PROCassem:PRINT
  110 PRINT"1. Pop Music"
  120 PRINT"2. I can't get the laugh rig
ht Bob"
  130 REPEAT:G%=GET
  140 IFG%=ASC"1" A%=40:X%=&30:Y%=&58:CA
LLplay
  150 IFG%=ASC"2" A%=40:X%=&58:Y%=&7C:CA
LLplay
  160 UNTIL FALSE
  170 DEFPROCassem
  180 FOR PASS=0 TO 2 STEP 2
  190 P%=&900:[OPT PASS
  200 .play_s SEI:JSRinit
  210 LDA#&0F:STA&72
  220 LDA#&00:STA&70
  230 LDA&75:STA&71
  240 .loop1 LDY#&00
  250 .loop2
  260 LDA(&70),Y:PHA:AND#&0F
  270 JSRsound1:PLA:AND#&F0
  280 LSRA:LSRA:LSRA:LSRA
  290 JSRsound1:INY
  300 BNEloop2:INC&71
  310 LDA&71:CMP&76:BNEloop1
  320 LDA#&0F:JSRsound1
  330 CLI:RTS
  340 .init LDA#&FF:STA&FE43
  350 LDA#&84:JSRsound
  360 LDA#&00:JSRsound
  370 LDA#&A4:JSRsound
  380 LDA#&00:JSRsound
  390 LDA#&C4:JSRsound
  400 LDA#&00:JSRsound
  410 RTS
  420 .sound STA&FE4F
  430 LDX#&00:STX&FE40
  440 NOP:NOP:NOP:NOP:NOP:NOP
  450 LDX#&08:STX&FE40:RTS
  460 .sound1
  470 ORA#&90:JSRsound
  480 ORA#&20:JSRsound
  490 EOR#&60:JSRsound
  500 LDX&74
  510 .loop3
  520 DEX:BNEloop3:RTS
  530 .play
  540 STA&74:STX&75:STY&76
  550 JMPplay_s
  560 ]:NEXT
  570 ENDPROC
```

```
 10 = 1092 2    130 = 5CFC 1    250 =  372 7    370 = 1B1B E    490 = 79A7 8
 20 = 27E9 C    140 = C834 8    260 = 6F34 7    380 = D5F5 E    500 = D7D6 6
 30 = 7256 B    150 = D860 E    270 = F3C6 B    390 = BBA8 9    510 = 1353 4
 40 = DFB8 B    160 = 226C 0    280 = 2D50 4    400 = D5F5 5    520 = 88AC B
 50 = 8B0B 0    170 = 1330 7    290 = 2FE0 C    410 = 9843 A    530 = BCC6 7
 60 = 925F 7    180 = C046 4    300 = 24DD F    420 = CD24 2    540 = 4125 E
 70 = 72F6 D    190 = 6896 D    310 = 21CC C    430 = B40F C    550 = 1483 6
 80 = 9ACD 7    200 = 3B6B B    320 =  2CC E    440 = 352D 6    560 = DA42 1
 90 = 36BA 1    210 = 88CC 4    330 =  188 1    450 = 207B E    570 = ED0F 5
100 = 98B5 6    220 = 9849 6    340 = 9630 5    460 = 34E1 A
110 =  608 C    230 =  7EB A    350 = DA4E E    470 = CC56 7
120 = 637C C    240 = 8F91 6    360 = D5F8 8    480 = 1622 A
```

BEEB BODY BUILDING PACK ORDER FORM

Body Build Pack No. 76

- ☐ Sound Sampler Kit including printed circuit board.............£24.00
- ☐ Sound Sampler assembled and tested.............................£27.00
- ☐ Battery power option with battery, clip & regulator £3.50
- ☐ Information sheet on tapping 5 volts from your computer ....Free with order
- ☐ Risc machine lead assembled...£6.50
- ☐ Optional printer socket extender...£8.50
- ☐ 8 bit computer lead (Compact or other)..............................£5.00
- ☐ Risc OS software (free on subscription disc).......................£6.00
- ☐ 8 bit software (free on next month's disc)............................£4.00
- ☐ Pack 17 D/A converter kit with free printer User Port cable...£24.00
- ☐ Pack 17 assembled £29.00

If you don't want to cut out or copy the order from simply write stating what you require

Name

Address

Post code

Make cheques payable to Musbury Consultants and send to:
8 Fairhill, Helmsmore, Rossendale, Lancs BB4 4JX

Educational orders welcome

IT PAYS TO READ THE SMALL PRINT.

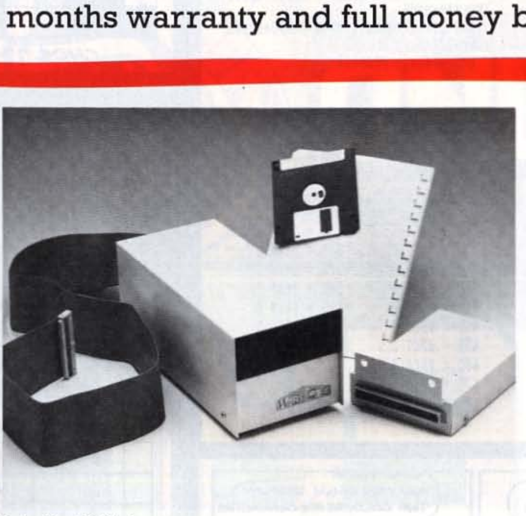
Where else can you buy hard disc systems for these prices?

Each system includes a high quality hard disc drive and a leading SCSI board (the Oak Solutions super fast 16 bit card).

They come in colour matched metal cases, designed to complement the Archimedes range of computers. And contain a switched mode power supply, low noise cooling fan and are complete with all cables, ready to use straight away.

Send us the picture below showing the new Warehouse Drive with OAK SCSI card (worth £199) and we'll give you the OAK SCSI card FREE When you order one of our Hard Disc Drives.

For peace of mind every Warehouse Drive is fully tested and we offer 12 months warranty and full money back guarantee.



Drive for A3000 shown

OAK SCSI Card is RISC OS 3.00 compatible

300/400 Series	Internal	External	A3000 External
20Mb	£199 ☐	£279 ☐	£279 ☐
45Mb	£245 ☐	£325 ☐	£325 ☐
80Mb	£345 ☐	£425 ☐	£425 ☐

Please tick drive required

I enclose cheque /P.O. for £........... made payable to Warehouse

Please debit my VISA ☐ ACCESS ☐ Expiry date ☐☐☐☐

Credit card number ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Signature .... Date..........................

Mr/Mrs/Miss/Ms Name ....

Address ....

....

.... Postcode.....................

Please return completed order form to:
Warehouse, 68 Green Street, Great Gonerby, Grantham,
Lincs. NG31 8LE
Tel. /Fax. 0476 593110

Prices exclude carriage (£10.00) and VAT (17.5%)

M1

WaREHOUSE

Where else

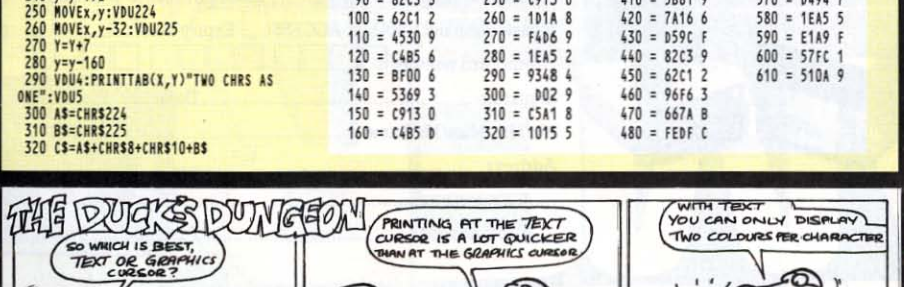
Rom and Ram

```
   10 REM LIST1
   20 REM TEXT CURSOR
   30 MODE5
   40 VDU23,224,60,66,165,129,165,15
3,66,60
   50 VDU23,225,25,127,254,188,60,60
,102,231
   60 X=10:Y=2
   70 PRINT"PRINT CHR SIMPLY"
   80 PRINTTAB(X,Y)CHR$224
   90 PRINT'"A$=CHR$224:PRINTA$"
  100 A$=CHR$224
  110 Y=Y+4
  120 PRINTTAB(X,Y)A$
  130 COLOUR1
  140 PRINT'"Add FOREGROUND col"
  150 Y=Y+4
  160 PRINTTAB(X,Y)A$
  170 COLOUR130
  180 PRINT'"Add BACKGROUND col"
  190 Y=Y+4
  200 PRINTTAB(X,Y)A$
  210 PRINT'"JOIN CHRs TOGETHER  PRI
NT ONE BELOW THE OTHER WITH TWO PRIN
TCOMMANDS"
  220 B$=CHR$225
  230 Y=Y+6
  240 PRINTTAB(X,Y)A$
  250 PRINTTAB(X,Y+1)B$
  260 PRINT'"TWO CHRS/ONE STRING!"
  270 Y=Y+5
  280 C$=A$+CHR$8+CHR$10+B$
  290 PRINTTAB(X,Y)C$
  300
  310 COLOUR128:COLOUR3
  320 PRINT'"   PRESS SPACEBAR"
  330 REPEATUNTILGET=32
  340 CLS
  350 X=10:Y=3
  360 PRINT'" NORMAL COLOURS"
  370 PRINTTAB(X,Y)C$
  380 PRINT'" COLOURS INCLUDED!"
  390 Y=Y+5
  400 C$=CHR$17+CHR$1+CHR$17+CHR$130
+C$
  410 PRINTTAB(X,Y)C$
  420 COLOUR128:COLOUR3
  430 PRINT'" WHITE HEAD/"
  440 PRINT" RED BODY!"
  450 Y=Y+6
  460 D$=CHR$17+CHR$3+CHR$17+CHR$129
+A$+CHR$8+CHR$10+CHR$17+CHR$1+CHR$17
+CHR$130+B$
  470 PRINTTAB(X,Y)D$
```

```
 10 =    0 0     250 = 7C86 0
 20 =    0 0     260 = BC1F 1
 30 = AABE E     270 = D494 B
 40 = 198E 3     280 = 1015 9
 50 = B88E 7     290 =  EC2 7
 60 = E13E 8     300 = D1AD 0
 70 = 26AE C     310 = 24B3 8
 80 =  3F5 9     320 = 609F F
 90 = 27A6 3     330 = 5B81 6
100 =  D02 C     340 = 7A16 D
110 = C4B5 E     350 = F11F 1
120 = 68A0 E     360 = 9259 C
130 = E949 7     370 =  EC2 A
140 = 3089 C     380 = B9B5 A
150 = C4B5 A     390 = D494 C
160 = 68A0 4     400 = BAF9 9
170 = 1552 0     410 =  EC2 F
180 =  876 E     420 = 24B3 B
190 = C4B5 0     430 = 6711 B
200 = 68A0 0     440 = 14A3 B
210 = FD37 D     450 = E4F7 3
220 = C5A1 A     460 = A7B2 0
230 = E4F7 E     470 = 9755 B
240 = 68A0 B
```

```
   10 REM LIST2
   20 REM GRAPHICS CURSOR
   30 MODE5
   40 VDU23,224,60,66,165,129,165,15
3,66,60
   50 VDU23,225,25,127,254,188,60,60
,102,231
   60 VDU5
   70 X=0:Y=0
   80 VDU4:PRINTTAB(X,Y)"MOVEx,y:PRI
NTCHR$224":VDU5
   90 x=640
  100 y=960
  110 MOVEx,y:PRINTCHR$224
  120 Y=Y+4
  130 VDU4:PRINTTAB(X,Y)"USING VDU t
o PRINT":VDU5
  140 y=y-128
  150 MOVEx,y:VDU224
  160 Y=Y+4
  170 VDU4:PRINTTAB(X,Y)"ADD COLOUR
(GCOL)":VDU5
  180 y=y-128
  190 GCOL0,1
  200 MOVEx,y:VDU224
  210 Y=Y+4
  220 VDU4:PRINTTAB(X,Y)"TWO CHRS PR
INTED"
  230 PRINT"SEPARATELY ONE BELOWTHE
OTHER":VDU5
  240 y=y-192
  250 MOVEx,y:VDU224
  260 MOVEx,y-32:VDU225
  270 Y=Y+7
  280 y=y-160
  290 VDU4:PRINTTAB(X,Y)"TWO CHRS AS
 ONE":VDU5
  300 A$=CHR$224
  310 B$=CHR$225
  320 C$=A$+CHR$8+CHR$10+B$
  330 MOVEx,y:PRINTC$
  340 Y=Y+5
  350 y=y-160
  360 VDU4:PRINTTAB(X,Y)"COLOUR INCL
UDED!":VDU5
  370 C$=CHR$18+CHR$0+CHR$1+C$
  380 MOVEx,y:PRINTC$
  390 Y=Y+5
  400 VDU4:PRINTTAB(3,Y)"PRESS SPACE
BAR"
  410 REPEATUNTILGET=32
  420 CLS
  430 X=0:Y=0
  440 x=640
  450 y=960
  460 PRINTTAB(X,Y)"DIFFERENT COLOUR
S"
  470 VDU5
  480 C$=CHR$18+CHR$0+CHR$1+A$+CHR$8
+CHR$10+CHR$18+CHR$0+CHR$2+B$
  490 MOVEx,y:PRINTC$
  500 Y=Y+5
  510 y=y-160
  520 VDU4:PRINTTAB(X,Y)"MULTI COLOU
R!":VDU5
  530 VDU23,226,60,126,255,255,255,2
55,126,60
  540 C$=CHR$18+CHR$0+CHR$2+CHR$226+
CHR$8+CHR$18+CHR$0+CHR$1+A$+CHR$8+CH
R$10+B$
  550 MOVEx,y:PRINTC$
  560 VDU23,227,0,0,0,0,60,0,102,231
  570 Y=Y+5
  580 y=y-160
  590 VDU4:PRINTTAB(X,Y)"WHITE BOOTS
/BELT!":VDU5
  600 C$=C$+CHR$8+CHR$18+CHR$0+CHR$3
+CHR$227
  610 MOVEx,y:PRINTC$
```

```
 10 =    0 0     170 = 8BEF 1     330 = 510A 9     490 = 510A 3
 20 =    0 0     180 = 5369 4     340 = D494 F     500 = D494 E
 30 = AABE E     190 =  32F F     350 = 1EA5 0     510 = 1EA5 7
 40 = 198E 3     200 = C913 6     360 = 78EE D     520 = D990 E
 50 = B88E 7     210 = C4B5 D     370 =  186 F     530 = 6F3B 8
 60 = 667A D     220 = 8EC6 3     380 = 510A A     540 = 427C B
 70 = D59C 4     230 = 93BB 3     390 = D494 5     550 = 510A 9
 80 = 28F9 3     240 = 2ED9 4     400 = B2CC C     560 = 1BA9 8
 90 = 82C3 3     250 = C913 0     410 = 5B81 9     570 = D494 7
100 = 62C1 2     260 = 1D1A 8     420 = 7A16 6     580 = 1EA5 5
110 = 4530 9     270 = F4D6 9     430 = D59C F     590 = E1A9 F
120 = C4B5 6     280 = 1EA5 2     440 = 82C3 9     600 = 57FC 1
130 = BF00 6     290 = 9348 4     450 = 62C1 2     610 = 510A 9
140 = 5369 3     300 =  D02 9     460 = 96F6 3
150 = C913 0     310 = C5A1 8     470 = 667A B
160 = C4B5 D     320 = 1015 5     480 = FEDF C
```


THE DUCK'S DUNGEON
SO WHICH IS BEST, TEXT OR GRAPHICS CURSOR?
WELL, IT'S SWINGS AND ROUNDABOUTS REALLY.
PRINTING AT THE TEXT CURSOR IS A LOT QUICKER THAN AT THE GRAPHICS CURSOR
BUT YOU CAN POSITION THINGS MORE FINELY AT THE GRAPHICS CURSOR.
WITH TEXT YOU CAN ONLY DISPLAY TWO COLOURS PER CHARACTER
YER, AND YOU GET A BLOCK FOR A HEAD
SO WHAT'S NEW?

Having spent months learning all about Basic, Rom has decided enough is enough and he wants to start writing his own games. Ram has agreed and begins with an in-depth look at how characters, sprites and icons – or whatever you call them – can be made and used effectively.

So we'll start with a look at the differences between printing characters at the text cursor and the graphics cursor. Each has its own advantages and disadvantages but both can be used to equal good effect. In both cases we'll print a simple two character image of a man, as seen in Figure I – you can see why Ram gave up his day job as an artist.

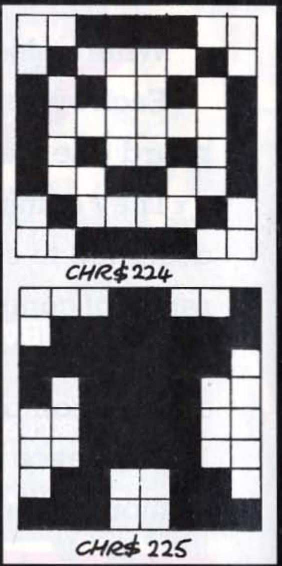


Figure I

Even Rom knows how to create *user defined graphics* so there should not be any problem understanding lines 40 and 50. We can print the head simply (line 80) but in order to make things more manageable we let a

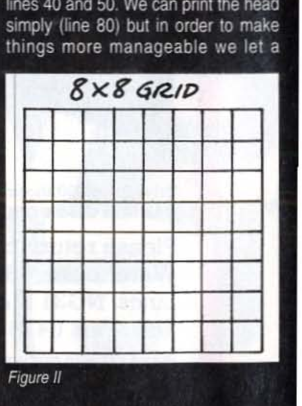


Figure II

A man about screen

string equal each character (line 100) and then print the string (line 120).

Anything printed at the text cursor has two colours: A foreground colour and a background colour. So, for a red face, we set the foreground colour to 1 (line 130) and the background colour to yellow (line 170). This time when *A$* is printed you can see that a solid yellow block appears behind the face. This is because each character is made up from an 8 x 8 grid, shown in Figure II.

Think of this grid as the background and adding your character as putting in the foreground, Figure III. To see what the whole thing looks like we first let *B$=CHR$225*, which is the body, and then print *A$* above *B$*, lines 240 and 250. Better still we can join the two strings together to form one string, see Figure IV.

Colour can also be included as part of the string so it is not necessary to keep specifying each character's colour every time you want to print it. To demonstrate this difference line 310 returns the foreground and background colours to normal – white on black – and then the sprite is printed at line 370. How colour commands can be incorporated is shown in Figure V.

D$, at line 460, creates a sprite with different colours for the head and the body. It would be preferable to have a yellow face with red outline instead of ALL the background grid being yellow too. To get rid of Mr SquareHead we'll have to print our sprite at the graphics cursor.

To print anything at the graphics cursor we first include a VDU5 and if we wish to return to the text cursor we must have a VDU4 first. The position of the cursor is controlled by the graphics command:

```
MOVE x,y
```

as opposed to the text command:

```
PRINTTAB(X,Y)
```

Note that the y origin (0) is at the bottom of the screen for graphics and at the top for text.

At line 150 a simpler way of printing a CHR$ is to use VDU followed by that CHR$'s number which means that VDU224 is the same as PRINT CHR$224, see line 150.

Colour can again be added quite simply by the command GCOL0,c where *c* is the number of the colour required, line 190. To print the body below the head make the y co-ordinate of the body 32 less than the head (line 260). Again we can make this easier by joining the two parts of the character together as we did with Listing I, lines 300 to 320. Similarly we can add the colour into the string as shown in Figure VI. Now the good bit. Because of the way things are drawn/printed at the graphics cursor – without plotting a background colour – we *can* have a yellow face with red outline, eyes and mouth. In order to do this we need to define extra characters, see Figure VII.

By superimposing separate parts on to a combined image we can build up colour layers. If we define CHR$226 as a filled-in head, we can print that as yellow and then move the cursor back to print a red outline face over it. To finish off we can add CHR$227 – a set of boots and belt – and print that in a different colour over the body.

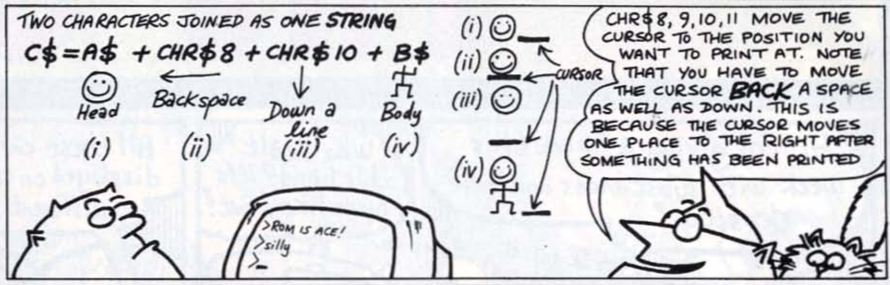

TWO CHARACTERS JOINED AS ONE STRING
C$=A$ + CHR$8 + CHR$10 + B$
Head
Backspace
Down a line
Body
(i)
(ii)
(iii)
(iv)
(i)
(ii)
(iii)
(iv)
CURSOR
CHR$ 8, 9, 10, 11 MOVE THE CURSOR TO THE POSITION YOU WANT TO PRINT AT. NOTE THAT YOU HAVE TO MOVE THE CURSOR BACK A SPACE AS WELL AS DOWN. THIS IS BECAUSE THE CURSOR MOVES ONE PLACE TO THE RIGHT AFTER SOMETHING HAS BEEN PRINTED
>ROM IS ACE!
>silly
>_

Figure IV

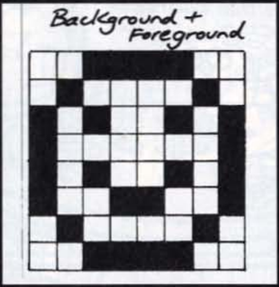

Background + Foreground

Figure III

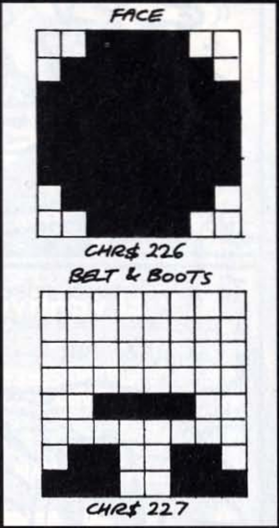

FACE
CHR$ 226
BELT & BOOTS
CHR$ 227

Figure VII

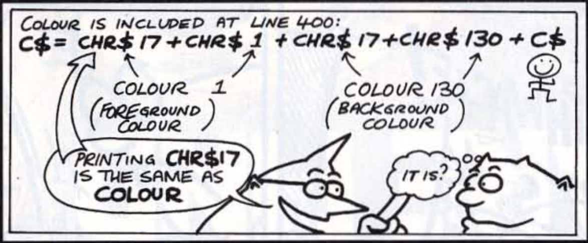

COLOUR IS INCLUDED AT LINE 400:
C$= CHR$ 17 + CHR$ 1 + CHR$ 17 + CHR$ 130 + C$
COLOUR 1
(FOREGROUND COLOUR)
COLOUR 130
(BACKGROUND COLOUR)
PRINTING CHR$17 IS THE SAME AS COLOUR
IT IS?

Figure V

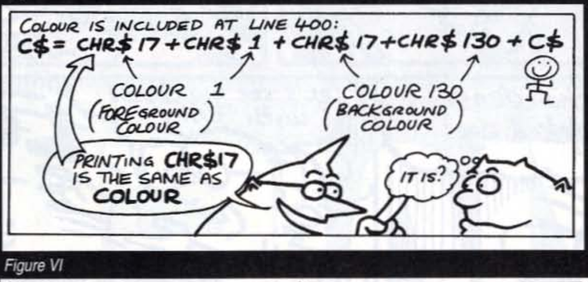
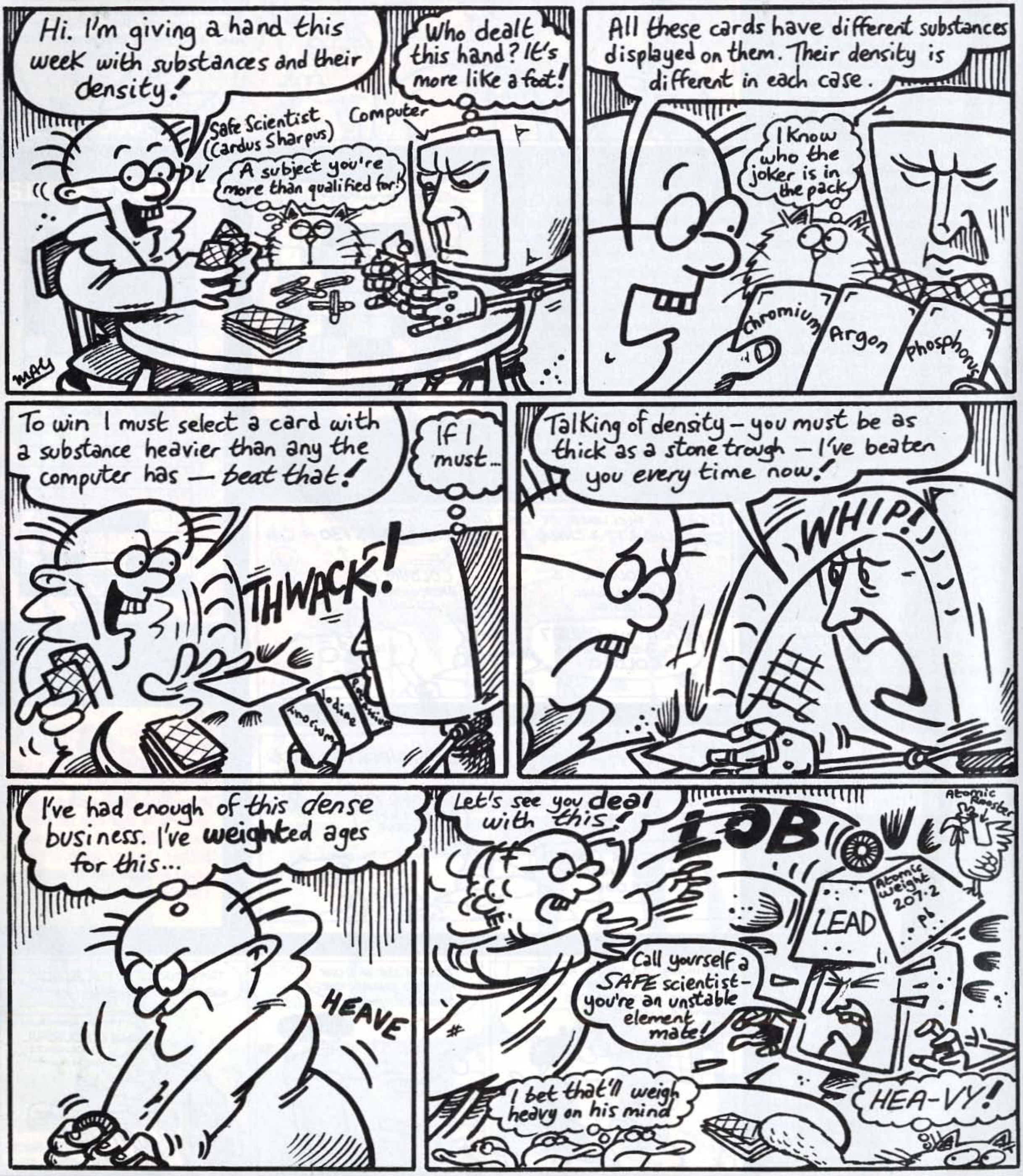

COLOUR IS INCLUDED AT LINE 400:
C$= CHR$ 17 + CHR$ 1 + CHR$ 17 + CHR$ 130 + C$
COLOUR 1
(FOREGROUND COLOUR)
COLOUR 130
(BACKGROUND COLOUR)
PRINTING CHR$17 IS THE SAME AS COLOUR
IT IS?

Figure VI

● Well, that's how to print things but we need to know how to UNprint them if we're going to move them around the screen. Next month we'll show how this can be done very simply and effectively. Either that or we'll all be given an A3000 for Christmas and play Lemmings all day.

ALTHOUGH SLOWER TO ACHIEVE YOU CAN AT LEAST HAVE MULTI-COLOURED SPRITES AT THE GRAPHICS CURSOR
TAKES A LOT OF USER DEFINED CHARACTERS THOUGH!
YER!
THAT DUCK'S GOT A BLACK SENSE OF HUMOUR!
I'M HARBOURING SOME COLOURFUL THOUGHTS!

The Safe


Hi. I'm giving a hand this week with substances and their density!
Who dealt this hand? It's more like a foot!
Safe Scientist (Cardus Sharpus)
Computer
A subject you're more than qualified for!
All these cards have different substances displayed on them. Their density is different in each case.
I know who the joker is in the pack
Chromium
Argon
Phosphorus
To win I must select a card with a substance heavier than any the computer has — *beat that!*
If I must...
THWACK!
Iodine
Potassium
Talking of density — you must be as thick as a stone trough — I've beaten you every time now!
WHIP!
I've had enough of this dense business. I've **weighted** ages for this...
HEAVE
Let's see you **deal** with this!
LOB
Atomic Rooster
LEAD
Atomic weight 207·2 pb
Call yourself a SAFE scientist — you're an unstable element mate!
I bet that'll weigh heavy on his mind
HEA-VY!

Scientist

LET'S COMPUTE!

Density

The Safe Scientist finds a simple and easy way to explore an amazing science subject

Hello again. This month we're going to see how dense you are. With luck, you may be good enough to beat your computer in a kind of top trumps game.

Both you and your machine are dealt three cards. These simply show you the name of a substance. You select one of your cards and if your substance is denser than any held by the computer, you win.

So what is density? Well, it's a way of indicating how heavy a substance is. Of course, if you've got a lot of feathers they'll weigh more than a teeny amount of gold. The density of a substance tells you how much one cubic centimetre of it weighs.

So when you play this game you'll be learning about substances, which is another crucial part of the National Curriculum.

It isn't really very difficult to play because you can see the computer's cards as well as your own. Also, the computer does not play in a very intelligent way. It will always win if it can but it won't use the best card. This should make it possible for you to beat it most of the time.

After each trick is played, the hands are made up to three cards again, selected randomly from the data files. See if you can develop a strategy to make your machine waste its good cards.

It shouldn't be much of a problem for you to add extra cards in the data file. Your science teacher at school will probably have a book full of tables of substances and their features. If you wanted to you could use a different feature instead of density. How about using melting temperature or molecular mass?

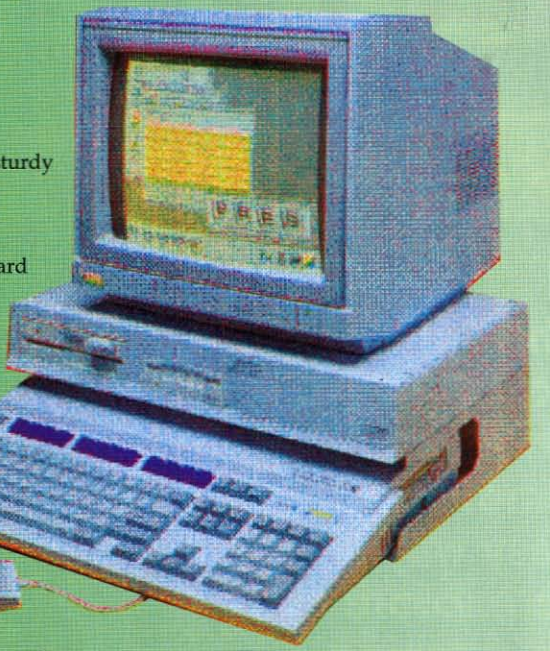
● That's it for this month. Next month we'll be into the world of springs and stretchiness.

```
   10 REM Density game
   20 REM The Safe Scientist
   30 REM (c) The Micro User
   40 MODE1:VDU23;8202;0;0;0;0;
   50 DIMcard$(21),density(21),yourhand(
3),myhand(3)
   60 cs=0:ps=0
   70 FORn=1TO21
   80 READ card$(n),density(n)
   90 NEXT
  100 FORN=1TO3:PROCgetcard:yourhand(N)=
N%:NEXT
  110 FORN=1TO3:PROCgetcard:myhand(N)=N%
:NEXT
  120 PRINTTAB(2,0)"PLAYER'S CARDS"TAB(2
,20)"COMPUTER'S CARDS"
  130 FORN=1TO3:COLOUR2:PRINTTAB(2,N*2);
card$(myhand(N)):COLOUR1:PRINTTAB(2,20+N
*2)card$(yourhand(N)):NEXT
  140 COLOUR3:PRINTTAB(2,30)"Space moves
 pointer. Return selects."
  150 FOR go=1TO10
  160 PROCselect
  170 PROCcompoturn
  180 PROCreplacecards
  190 NEXT
  200 PRINT"Press Space to play again"
  210 REPEATUNTILINKEY-99:RUN
  220 END
  230 DEFPROCgetcard
  240 N%=RND(21)
  250 ENDPROC
  260 DEFPROCselect
  270 p=1
  280 PRINTTAB(20,2)"*"
  290 REPEAT
  300 J=GET
  310 IF J=32 p=p+1
  320 IF p=4 p=1
  330 PRINTTAB(20,2)" "TAB(20,4)" "TAB(2
0,6)" "TAB(20,p*2)"*"
  340 UNTILJ=13
  350 COLOUR2:PRINTTAB(10,12);card$(myha
nd(p))
  360 ENDPROC
  370 DEFPROCcompoturn
  380 q=0
  390 REPEAT
  400 q=q+1:IF q=4 ps=ps+1:q=RND(3):VDU1
9,2,10;0;:GOTO430
  410 UNTIL density(yourhand(q))>density
(myhand(p))
  420 cs=cs+1:VDU19,1,12;0;
  430 COLOUR1:PRINTTAB(10,15);card$(your
hand(q))
  440 ENDPROC
  450 DEFPROCreplacecards
  460 PRINTTAB(30,4)"SCORE = ";ps;TAB(30
,24)"SCORE = ";cs
  470 PRINTTAB(2,p*2);SPC(20)TAB(2,20+q*
2);SPC(20)
  480 TIME=0:REPEATUNTILTIME>200:VDU20
  490 PROCgetcard
  500 COLOUR2:myhand(p)=N%:PRINTTAB(2,p*
2)card$(myhand(p))
  510 PROCgetcard
  520 COLOUR1:yourhand(q)=N%:PRINTTAB(2,
20+q*2)card$(yourhand(q))
  530 PRINTTAB(10,12);SPC(20)TAB(10,15);
SPC(20)
  540 ENDPROC
  550 DATA HYDROGEN,0.001,OXYGEN,0.01,CA
RBON DIOXIDE,0.02,ALCOHOL,0.8,WATER,1,WO
OD,0.5,ALUMINIUM,2.7,COPPER,8.9,IRON,7.8
,GOLD,19.3,PLATINUM,21.5,SILVER,17,MERCU
RY,13.6,SEA WATER,1.3,CANDLE WAX,0.9,FOA
MED PLASTIC,0.1
  560 DATABRASS,8.5,GLASS,2.6,ICE,.92,LE
AD,11.3,SAND,2.6
```

```
 10 =    0 0     290 = BFBA 1
 20 =    0 0     300 = 4CEA 4
 30 =    0 0     310 = 59DA A
 40 = 10A4 4     320 = 57EF D
 50 = D9BE 8     330 = 1D81 0
 60 = FDE4 9     340 = AF7B 9
 70 = 7AC8 0     350 = C946 E
 80 =   56 9     360 = ED0F 5
 90 = 2C83 1     370 = EF60 4
100 = 4DD4 E     380 = AAA2 8
110 = 5903 8     390 = BFBA 9
120 = 61A7 8     400 = 2120 B
130 = A001 6     410 = 874D E
140 = 189C A     420 = 5D9A 6
150 =  19E 2     430 = 6B30 C
160 = F89D B     440 = ED0F F
170 = 5CA2 F     450 = A44C F
180 = 73D5 B     460 = C7FE 4
190 = 2C83 8     470 = 6833 F
200 = 73E0 4     480 = 8764 C
210 = 9564 1     490 = CCA0 4
220 = FD2E 0     500 = 69E5 3
230 = 2106 C     510 = CCA0 7
240 = 4414 A     520 = 389A 9
250 = ED0F 9     530 = FC82 5
260 = 981C A     540 = ED0F D
270 = 8DB3 D     550 = C8E1 0
280 = 2339 3     560 = 411F E
```

PRES

AT THE FOREFRONT OF A3000 UPGRADES



Monitor Stand	**£24.95**

Probably the best monitor stand available for the A3000 and the sturdy basis of your modular system.

System Housing	**£69.50**

When you are ready to expand the A3000 this system housing is placed over the monitor stand, allowing two floppy drives and hard drives to be added with ease.

Expansion Card Case	**£14.95**

If you're adding an expansion card (or podule) to your A3000 then you will need this case to connect and protect it.

Podule Expansion System	**£54.90**

Allows two podules to be added to your A3000, and be working alongside each other simultaneously.

Disc Buffer	**£49.95**

The definitive expansion for people that wish to add extra floppy drives. Support for 40 and 80 tracks. Will also allow you to add SCSI. We are continuously working on other options.

65Host 1770 DFS and DFS Filer	**£19.95**

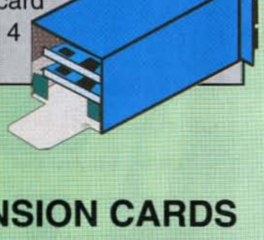
A Rom upgrade for the Disc Buffer that provides a DFS drive icon on the icon bar and 1770 DFS in 65Host, the BBC Emulator.

Various disc options 3½" & 5¼" floppy drives, 20 & 40 MB hard drives and 40, 60, 100MB ... SCSI drives. Do not be baffled by products with 'go faster stripes' ... call us for some honest advice.

FEATURED PRODUCT

NEW PRODUCT A3K4
DOUBLE PODULE EXPANSION

Now you can add a second standard eurocard podule to your A3000. Fully integrated with the PRES expansion system - no soldering required, no timing problems, no large box bolted around your computer, simply 'plug in and expand'... (requires A3K3 expansion card case). Remember A3K6 also allows for an extra internal card; giving a total of ... 4 expansion cards in your A3000



HOW TO INCREASE THE NUMBER OF A3000 EXPANSION CARDS

1. FIT A3K5 – THE IO ADAPTOR. This is a plug in board to provide the necessary lines for podule nos. 2 & 3. It is a custom made connector that does not rely on test clips and even has an LED to test for the correct fitting.
2. Now you can fit a second expansion card (standard size) in A3K4 – the double podule expansion for our standard podule case A3K3.
3. Or you could decide to add an extra internal card onto our disc buffer (A3K6) such as a SCSI interface card.
4. Or you could decide to fit both and have FOUR cards on your A3000! . . . 2 internal cards plus 2 standard external cards.

OTHER QUALITY PRODUCTS FROM PRES

'Micro-Trader' BUSINESS SYSTEM'

'Micro-Trader' consists of a powerful range of computer programs to meet the many needs of the small to medium sized business. 'Micro-Trader' provides professional integrated accounts that have been designed by a businessman to meet the needs of the businessman. 'Micro-Trader' has been specially developed for multi-tasking operation under RISC-OS on the A3000, A5000 and Archimedes computers.

'MICRO-TRADER' FEATURES

- ★ Integrated SALES, PURCHASE and NOMINAL LEDGERS
- ★ The system can be extended as the needs of the business grow
- ★ Quick entry of information and easy error correction
- ★ Fully Integrated System avoids repetitive entries
- ★ Prints INVOICE, CREDIT NOTE, STATEMENT, REMITTANCE ADVICE
- ★ Prints PROFIT & LOSS ACCOUNT and BALANCE SHEET
- ★ User defined layouts of all printed documents
- ★ All reports can be sent to the screen, disc or printer
- ★ Automatic entry date – comprehensive Batch Number system
- ★ Unique 'CASHUP' facility for Retail businesses
- ★ Full VAT facilities and printout of VAT Return
- ★ Double Entry accounts with Audit Trail and Trial Balance
- ★ Integrated STOCK CONTROL program records stock holdings & values
- ★ MAILING prints labels and letters

The 'Micro-Trader' Business System is easy to use and offers a complete powerful and flexible business system for only **£79.95 + VAT** for each program module. Please call for more information – demo disc available.

SPACE KIT allows A400 users to add a second hard disc drive internally. Occupies the two left podule positions, supplied with all necessary cables & instructions .... £32.95 + vat

Complete upgrades with 40mb hard drive available. Call for details

YOU CAN ORDER FROM PRES WITH COMPLETE CONFIDENCE – WE ARE A REPUTABLE COMPANY WITH THOUSANDS OF SATISFIED CUSTOMERS – PRICES INCLUDE UK DELIVERY & NORMALLY PAYMENTS ARE ONLY COMPLETED ON DELIVERY

WE ARE A SPECIALIST ACORN SUPPLIER FROM COMPUTERS TO MONITORS, PRINTERS TO HARD DRIVES, GAMES TO BUSINESS SOFTWARE – IF YOU REQUIRE ANYTHING FOR YOUR ACORN MACHINE WHETHER IT BE A BBC OR ELECTRON; MASTER OR ARCHIMEDES CALL P.R.E.S.

A3000 WITH AN EXTRA 1MB RAM
LEARNING CURVE OR ENTRY LEVEL
FROM ONLY £599 + VAT
INCLUDING THE PRES MONITOR STAND
COMPLETE SYSTEMS AND PACKAGE PRICES AVAILABLE.
PLEASE CALL FOR DETAILS

THE NEW A5000
THE COMPUTER THAT SOLD OUT ON THE FIRST DAY OF ITS LAUNCH
ORDER YOUR A5000 NOW
SUPPLIES HAVE BEEN VERY LIMITED BUT WE WILL DO OUR BEST FOR AN EARLY DELIVERY.
CALL FOR ADVICE ON AVAILABILITY.

PRES Ltd, Box 319, Lightwater, Surrey, GU18 5PW
Tel. 0276 72046 • Fax 0276 51427

EDUCATION ORDERS AND ENQUIRIES WELCOME

WE ARE AN
Acorn

FAST MAIL ORDER SERVICE
(SUBJECT TO AVAILABILITY)

APPROVED DEALER AND SERVICE CENTRE, OFFERING A FRIENDLY SERVICE AT COMPETITIVE RATES.

ALL FORMATS BBC/MASTER/ ELECTRON

Superior	Tape	Disk
Play it Again Sam 1	£7.95	£9.95
Play it Again Sam 2	£7.95	£9.95
Play it Again Sam 3	£7.95	£9.95
Play it Again Sam 4	£7.95	£9.95
Play it Again Sam 5	£7.95	£9.95
Play it Again Sam 6	£7.95	£9.95
Play it Again Sam 7	£7.95	£9.95
Play it Again Sam 8	£7.95	£9.95
Play it Again Sam 9	£7.95	£9.95
Play it Again Sam 10	£7.95	£9.95
Play it Again Sam 11	£7.95	£9.95
Play it Again Sam 12	£7.95	£9.95
Play it Again Sam 13	£7.95	£9.95
Play it Again Sam 14	£7.95	£9.95
Play it Again Sam 15	£10.95	£12.95
Play it Again Sam 16	£10.95	£12.95
Superior Collection 1 BBC	£7.95	£9.95
Superior Collection 2 BBC	£7.95	£9.95
Superior Collection 3 ELK	£7.95	—
Acornsoft Hits 1	£7.95	£9.95
Acornsoft Hits 2	£7.95	£9.95
Elite	£10.95	£12.95
Revs + 4 Tracks BBC	£10.95	£12.95
Exile	£10.95	£12.95
Repton Infinity	£10.95	£12.95
Sim City	£10.95	£12.95
Speech	£7.95	£9.95
Perplexity	£7.95	£9.95
Hostages	£7.95	£9.95
Master Break	£7.95	£9.95
Question of Sport	£10.95	£12.95

All above also available for the
Master Compact add £2 to disk price

LEADS & CABLES

Archimedes Keyboard extension lead	£9.00
Archimedes Mouse extension lead	£9.00
Archimedes to BBC/Electron	£8.00
Archimedes to TV/Monitor (scart)	£9.00
Archimedes Monitor extension screened	£9.00
Archimedes to Printer (Cent. 2mt)	£10.00
Archimedes to Printer (Cent. 3mt)	£12.00
AC Mains Tape Recorder	£3.00
AC Mains Ext. (Monitor)	£7.00
BBC/Electron RGB M/vitec	£5.00
BBC/Electron to scart	£8.00
BBC/Electron to Ferg. MC01	£5.00
BBC/Electron to Hit. 1444	£5.00
BBC/Electron to Philips	£5.00
BBC/Electron Tape Recorder 7D/3Jack	£5.00
BBC/Electron Tape Recorder 7D/7D	£5.00
BBC/Electron Printer 1 metre	£9.00
BBC/Electron Printer 2 metre	£10.00
Compact Printer Lead 2 metre	£17.00
BBC/Electron TV to Computer	£4.00

COMPUTERS

Electrons	£75.00
BBC 'B' Tape	£155.00
BBC 'B' 8271	£185.00
BBC 'B' 1770	£180.00
BBC 'B+' 64k	£200.00
BBC Master 128k	£265.0

All computers are refurbished ex-demo machines, and are fully tested and carry a 90 day warranty

BBC/MASTER BUDGET DISKS

Elite (Acorn)	£5.00
Ransack	£3.00
Free Fall	£3.00
Rick Hanson Trilogy 80T	£8.00
Rick Hanson Trilogy 40T	£8.00
Thunderstruck 2	£3.00
Footballer of the Year	£3.00
Fair Means or Foul	£3.00
Omega Orb	£3.00
Bug Byte Compilation 1	£3.00
Psycastria	£3.00
Barbarian	£4.00

BBC SPARES

Power Supply	£49.00
Keyboards	£55.00
Keyboard Connection	£6.00
Keyswitches	£1.00
Keytops	£1.00
Speaker Grills	£2.00
Speakers	£2.00
UHF Modulators	£5.00
Speech Kits	£10.00
Cases (Top + Bottom)	£20.00
Main Board (from)	£43.00
16MHz Crystals	£2.00
17.7MHz Crystals	£2.00
Tape Deck (ALF03)	£29

ELECTRON SPARES

Main Computer Board	£49.00
Internal Power Board	£9.00
Complete Keyboard	£17.00
Cases (Top + Bottom)	£6.00
Keyswitches (5)	£2.00
Mains Power Unit	£17.00
Tape Recorder ALF03	£29
Keytops (set)	£5.00
Loudspeaker	£2.00
UHF Modulator	£5.00
Twin Rom Holders	£9.00
Advanced User Guide	£3.00

MASTER SPARES

65C02 Turbo Board	£85.00
Keyswitches (5)	£2.00
Twin Rom Holder	£9.00
Tape Recorder ALF03	£29.00
Keytops	£1.00

RE RELEASED
DUE TO POPULAR DEMAND
THE LOST CRYSTAL
Superb Graphic Adventure for
BBC B, Master, Electron
Disc £7.99
Tape £7.99

ELECTRON/BBC BUDGET TAPES

Draughts	£1.99
Chess	£1.99
Fruit Machine	£1.99
Reversi	£1.99
Mr. Wiz	£1.99
Tempest	£1.99
Centibug	£1.99
Deathstar	£1.99
World Geography	£1.99
Lunar Invasion	£1.99
Invasion Force	£1.99
Cavern Capers	£1.99
Howzat	£1.99
Omega Orb	£2.99
Last of the Free	£2.99
Xor	£1.99
Thunderstruck 2	£2.99
Diamond Mine 2	£2.99
Joey	£1.99
Ravage	£1.99
Dead or Alive	£1.99
Microball	£1.99
License to Kill	£1.99
Mineshaft	£1.99
Atom Smash	£1.99
Grebit (Frogger)	£1.99
Psycastria	£2.99
Rik the Roadie	£1.99
Creepy Cave	£1.99
Anarchy Zone	£1.99
Golden Figurine	£1.99
Stormcycle	£1.99
Cops and Robbers	£1.99
Panik	£1.99
Frankenstein 2000	£1.99
Survivors	£1.99
Dogfight	£2.99
Stix	£1.99
Break Free	£1.99
Pedro	£1.99
Rockfall	£1.99
Daredevil Dennis	£1.99
Joe Blade	£1.99
Joe Blade 2	£1.99
Subway Vigilante	£2.99
Crackup	£1.99
Hobgoblin	£2.99
Hobgoblin 2	£2.99
Tomcat	£1.99
Paperboy	£2.99
Shanghai Warriors	£1.99
Psycastri 2	£2.99
Pro Golf	£2.99
League Challenge	£2.99
Gunfight	£1.99
Night Strike	£1.99
Confusion	£1.99
Thunderstruck	£2.99
Breakthrough	£2.99
Tetris	£1.99
Kayleth (Adv)	£2.99
Plan B2	£2.75
Ziggy	£2.99
Ransack	£4.99
G. Gooch Cricket	£2.99
1st Steps Mr Men	£4.99
Here & There Mr Men	£4.99

All prices quoted include VAT Please add 30p per item on all software orders

VISA

BELL COMPUTERS

33 Lomond Drive, Leighton Buzzard, Beds. Tel: 0525 383074

Triple choice

Ian Waugh puts three of Ian Copestake's Archimedes stable through their paces

Product: Fontasy
Price: £25.00
Product: Quickey
Price: £10.00
Product: Two
Price: £19.00
Supplier: Ian Copestake Software,
10 Frost Drive, Wirral,
Merseyside L61 4XL.
Tel: 051-632 1234
Requirements: Risc OS

IT IS said that utilities are written for one of two reasons: Either to fix a bug or undocumented feature, or as an option which should have been in a program or operating system in the first place. Sometimes they are only of relevance to a few people, others are so useful you wonder how you ever managed without them. Those reviewed here fall neatly into the last category.

Fontasy

Fontasy converts Acorn outline fonts into Draw files, allowing them to be scaled and manipulated. It can produce outlines, fills and shadows as well as bend text around shapes.

You type some text into a dialogue window and select a font. A new window opens with the text appearing in outline form. It's worth remembering that the font must be an outline font as many early ones weren't.

Several windows can be opened featuring different fonts enabling you to compare the effects.

You can specify the font size although when you drop the file into a frame it will be scaled anyway. Fontasy maintains three Draw files in memory: Original, Structure and Full. This means that the displays can be produced more easily and you can cycle through them.

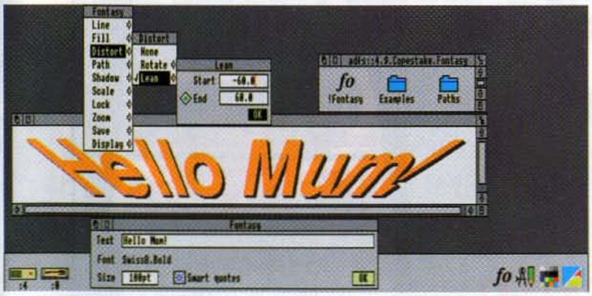
There are lots of text manipulatory functions. Line offers colour, width and join options; Fill lets you define a colour on a palette to fill the outline; Distort offers rotate and lean effects; Path has slope, column and arc options and so on.

Other functions include shadow, scale, zoom and lock. Lock lets you move the letters in a horizontal or vertical direction to make manual adjustments to the spacing between the letters – otherwise known as kerning.

The rotate and lean options allow separate values to be entered for the start and end which produces a smooth transition from one value to the other. This can create effects in which text gradually stands up, lies down or slopes from either end into the middle.

The Shadow functions have Block, Drop and Floor options which can create 3D effects and lay the shadow on the floor – very impressive.

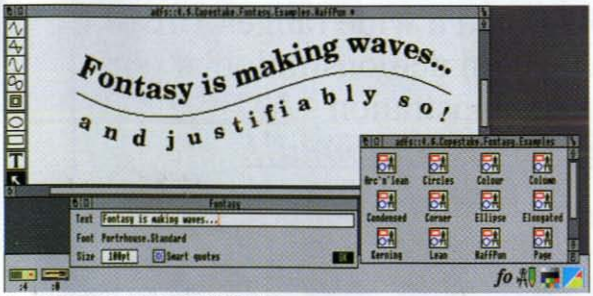
The manipulatory functions are all great fun and easy to work with and ➤


Fontasy
Line
Fill
Distort
Path
Shadow
Scale
Lock
Zoom
Save
Display
Distort
None
Rotate
Lean
adfs::4.$.Copestake.Fontasy
!Fontasy
Examples
Paths
Hello Mum!
OK

Lean
Start -60.0
End 60.0

Fontasy
Text Hello Mum!
Font Swiss0.Bold
Size 100pt
☑ Smart quotes

The making of Hello Mum


adfs::4.$.Copestake.Fontasy.Examples.RaffPun *
Fontasy is making waves...
and justifiably so!
adfs::4.$.Copestake.Fontasy.Examples
Arc'n'lean
Circles
Colour
Column
Condensed
Corner
Ellipse
Elongated
Kerning
Lean
RaffPun
Page
OK

Fontasy
Text Fontasy is making waves...
Font Porthouse.Standard
Size 100pt
☑ Smart quotes

Lots of fun and bad puns, too, with Fontasy

QuicKey

QuicKey is just what you've always wanted – something to tell you which combination of Ctrl, Shift and Function key you must press to Indent a Block in Edit. Okay, so you can remember that it's Control+F4, but do you know what Control+F9 does in Impression and is it Control+F9 or Control+F3 which is Paste in 1st Word Plus?

If you've ever had to think about problems like these, the chances are you've made your own function keys strips, possibly even using Ian Copestake's Arckeys. Well, for the price of a set of four you can have as many function key strips as you like – and on your computer screen, too.

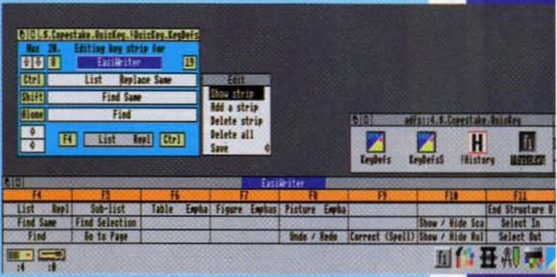
The idea is so simple, you'll wonder why no one has thought of it before. QuicKey runs from the icon bar and opens a function key template window which you an site anywhere on the screen although I suspect most users will put it at the bottom. The function keys are numbered across the top of the window and there are spaces underneath to write in the definitions.

The spaces can be one or two lines deep and you can set the width of the boxes. For instance, if you're running in Mode 12, all the definitions won't fit on the window but you can scroll the strip with the right mouse button. In a wider mode such as 16, a box width of 9 or 10 characters will let you see the complete strip on screen.

Nineteen definitions are supplied including ones for Edit, Draw, Tracker, PipeDream, Impression and Rhapsody. It's easy to create your own strips, too.

The strip can link up to the applications, so launching a program will automatically call up the correct function key strip – at least most of the time. If you are swapping between several applications, the strip follows. To make life even easier, clicking on a function on the strip acts as if you had actually pressed the keys. An especially nice feature for mouse users.

QuicKey certainly beats paper function key strips. The only drawback is the fact that it obscures some of the screen. But all in all, an essential utility.


.$.Copestake.QuicKey.!QuicKey.KeyDefs
Max 20. Editing key strip for
EasiWriter
Ctrl
Shift
Alone
Edit
Show strip
Add a strip
Delete strip
Delete all
Save
adfs::4.$.Copestake.QuicKey
KeyDefs
KeyDefsS
!History

Ctrl	List Replace Same
Shift	Find Same
Alone	Find

F4 List Repl Ctrl

EasiWriter

F4	F5	F6	F7	F8	F9	F10	F11
List Repl	Sub-list	Table Empha	Figure Emphas	Picture Empha			End Structure
Find Same	Find Selection					Show / Hide Sca	Select In
Find	Go to Page			Undo / Redo	Correct (Spell)	Show / Hide Rul	Select Out

Editing a function key strip with QuickKey there are several demo Draw files so you can see what can be accomplished.

Two

Two is the acronym for Task and Windows Organiser and it consists of two main parts plus a few extra utilities.

The Task organiser lets you set up a list of tasks which the computer can perform each time the Archimedes is turned on, or when Two starts up. This appears in a Task list window. Double clicking on a task makes it perform.

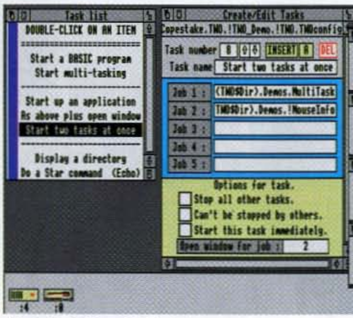
Selecting Create/Edit opens a window where you create the Tasks. No programming skills are needed, generally you just drag applications, directories and files to the window into one of the five Job Slots. Give the task a name and save the file. The next time you boot, the Task window will appear and off you go. You can bypass the start-up tasks by holding down the Alt key.

For example, to create a task which will boot a wordprocessor and load a file, you drag the wordprocessor into Job Slot one. Drag the directory containing the file into slot two and the file itself into slot three. Easy.

The Windows Organiser provides three ways of tidying up your windows. They can be reduced – according to the space available – and placed in a single pile, stacked so just the title bars are visible or organised into separate areas – again, screen space permitting. You can also tag windows so they aren't affected by the tidy up operation.

The extras include a screen blanker; *Copy and *Wipe options available from a menu; easy backup between specified drives and the removal of the caret from windows to avoid unwanted effects from accidental keystrokes.

A separate program lets you save up to six files with the *Configure settings of your computer and includes password protection. Changing this involves editing the file though.



DOUBLE-CLICK ON AN ITEM

Start a BASIC program
Start multi-tasking

Start up an application
As above plus open window
Start two tasks at once

Display a directory
Do a Star command (Echo)

Copestake.TWO.!TWO_Demo.!TWO.TWOconfig

Task number 8

Task name Start two tasks at once

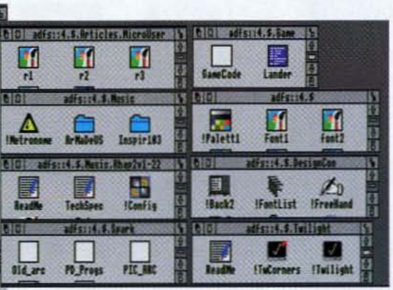
Job 1 : (TWO$Dir).Demos.MultiTask
Job 2 : TWO$Dir).Demos.!MouseInfo
Job 3 :
Job 4 :
Job 5 :

Options for task.

☐ Stop all other tasks.
☐ Can't be stopped by others.
☐ Start this task immediately.

Open window for job : 2

Two's Task list and Edit windows



Pile 'em high and stack 'em deep using Two's Window Organise facility

Another program, Creator, provides a quick way to create an Obey file. Again this calls for clicking and dragging an application into its window. It can contain a command script of up to 42 lines.

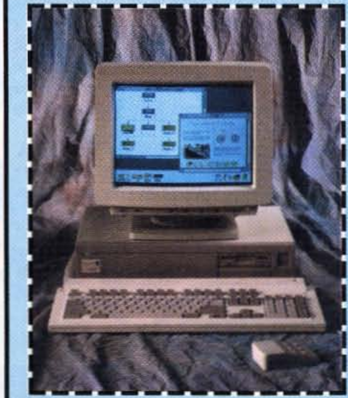
Two is a really neat utility and you only need a little Archimedes knowhow to be able to use it, although you really need a hard disc to make best use of it.

Summing up

For any sort of display work, banners, posters, DTP headlines and so on, Fontasy is brilliant – and at a price to knock the stuffing out of other so-called DTP computers.

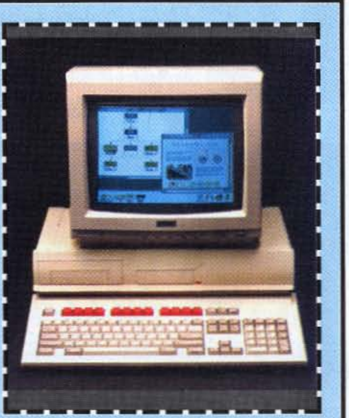
I've been using Two to hold a list of applications which are hidden several folders deep on my hard disc. It's also a great way of tidying up the screen without closing folders. While QuicKeys lives at the bottom of my screen – say no more.

smart computers are in SHEFFIELD!!!



The new A5000

Phone (0742) 766655
Fax (0742) 762232



The A3000

We have the new Acorn A5000, A3000 and a wide range of IBM compatibles, printers and peripherals all on demonstration at our showroom. So why not call for a demonstration - *NOW!!*

Smart Computers - for the best deals around!!

AMSTRAD GoldStar OSICOM SAMSUNG olivetti CITIZEN Panasonic star COMPUTER PRINTERS

Access

253 Broomhall St, Sheffield, S3 7SP.

Mail Orders Welcome

VISA

Same to you, doubled

Geoff Gallacher explores a new expansion unit for the BBC A3000

Product: PRES Double Podule Expansion and Adaptor Board
Price: Podule expansion £54.95 case £14.95
Supplier: PRES Ltd. PO Box 319, Lightwater, Surrey
Tel:
Requirements: BBC A3000 and PRES Podule Box

IN the Archimedes marketplace one company's name always seems to pop up when looking for peripherals – PRES. Latest in their range is a podule expansion for the BBC A3000 which allows two external podules to be fitted at the same time. You can fit it yourself although, for the nervous, your dealer should be able to do it or alternatively PRES say they will do it for you.

The kit comes complete with simple to follow instructions but it fits on to the PRES Podule box which must be bought separately. It consists of two new side plates to extend the old case sides and a top and bottom retainer to hold the box rigid. It was fun putting it together and the whole process took about 10 minutes.

Once you've got the basic metalwork set up, bolt the box back on to the computer. The new double podule backplane is inserted into the 64 pin expansion socket. This is a two layer PCB and obvious attention to detail on the layout means that the cross-talk and signal skews have been kept to a minimum.

The third and final step to installation is the addition of the IOC Adaptor Board which picks up the necessary signals to allow Risc OS to cope with the new podules.

This Adaptor Board is a 2ins square PCB containing a chip and some connectors. It is simply aligned and pushed on to the IOC – or Albion – chip. There is a red LED which lights up when the power is on and the Adaptor Board is placed correctly – nice touch.

In addition there's a 32 pin socket with a small ribbon cable attached and a connector fitted under the nearest of the Risc OS roms. This connector is then plugged into the IOC Adaptor Board to provide the extra address lines required to implement extra podules.

From the IOC Adaptor Board there is a flying lead connected to the new double backplane to provide for the new podule and MEMC select lines.

There is one other pair of pins on the Adaptor Board if you want to upgrade the PRES Disc-Buffer board to take a second card on top of the existing PCB. This is very useful if you have a system housing and want external floppies as well as another internal card fitted.

Currently PRES are working with Computer Concepts to provide a ScanLight card designed to fit on top of the disc-buffer board. No doubt, with the number of disc-buffer boards in the market many other manufacturers will be providing disc-buffer compatible versions of their internal cards too. If you have a disc-buffer get in touch with PRES to find out what other things can go on top.

In Use

Once the red light on the IOC adaptor was showing, indicating that it was fitted correctly, the machine was switched off and an Acorn ST506 and ScanLight cards were added to the new slots in the podule box.

Typing *Podules' from the * prompt showed that three podules were installed – the Disc-Buffer, the Acorn ST506 and the Scan-Light boards. Running the software for the scanner from the hard disc was no problem and scanning and saving to disc also presented no problems.

To really test the system the power was switched off, a SCSI card was added to the top of the disc buffer and the connections to the IOC adaptor board were made. Replacing the top cover a SCSI drive was connected. This time, at the * prompt the *Podules command notified me of four podules. Going back into desktop various data transfers between the different devices were carried out without a single failure.

A word of caution: When fitting some external podules to your BBC A3000 do pay attention to the power requirements of each card or you could overload the power supply. PRES will happily advise on most combinations – but check before you buy.

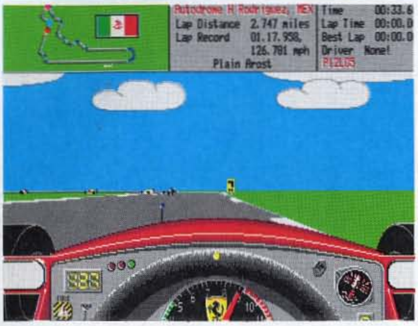
Summing Up

If you do not already have the PRES expansion card housing – Podule Box – this is a superb reason for selling the podule box you have and buying theirs. Its expansion capability now exceeds any other system and combined with the disc available for the A3000, C-Buffer, the Double Podule Expansion and Adaptor Board you can have more flexibility than with 400 series.

If you have the PRES Disc-Buffer board already and only want to add a second internal card, you can get the IOC Adaptor Board and appropriate second top-card direct from PRES.

CAMBRIDGE INTERNATIONAL SOFTWARE LTD.

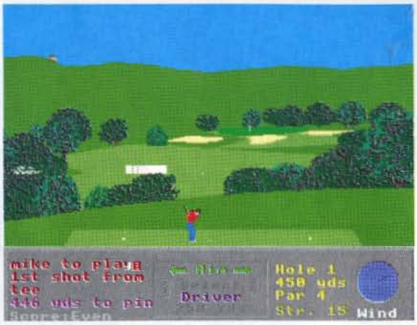
SUITE 2A, 436 ESSEX ROAD LONDON N1 3QP
TEL 071 226 3340 FAX 071 226 3408
CALL OUR SALES HOTLINE FOR VISA/ACCESS/BARCLAYCARD ORDERS


Autodrome H Rodriguez, MEX
Lap Distance 2.747 miles
Lap Record 01.17.958, 126.781 mph
Plain Prost
Time 00:33.6
Lap Time 00:00.0
Best Lap 00:00.0
Driver None!
P12105

CHEQUERED FLAG

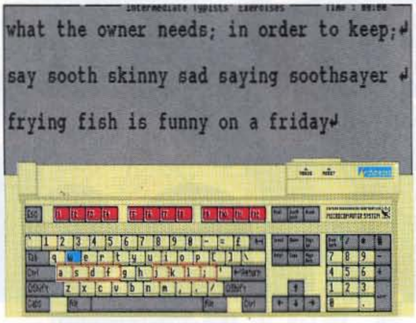
CIS's new Formula 1 Simulator. If you have ever played REVS then this is for you! True 3D : 4 circuits included: 3 levels of difficulty: Manual or Auto: Single race or series: Demo level: Working Mirrors: Speedo in Mph/Kph: Drive in all directions: Drive around objects: Skid on grass: Up and down hills: Chicanes: Digitised sound. £24.95 with a £5 off voucher for extra circuits for a limited period.

Prices include VAT
and Postage &
Packing in the UK.
All orders received
by 4.00. pm will be
despatched on the
same day by 1st
class post.


mike to play
1st shot from tee
446 yds to pin
Driver
Hole 1
450 yds
Par 4
Str. 15
Wind

MICRODRIVE WORLD EDITION

The world's greatest golf game now available with seven fantastic courses from around the world. Up to 4 players (male or female!) True 3D effects. Digitised sound. Play on a true contoured landscape. All the rules of golf, and you control the player not the ball. Courses from USA, Scotland, England, Portugal, Spain, Caribbean. £29.95 complete. £14.95 5 Xtra courses £20.40 Game only.



what the owner needs; in order to keep;↲

say sooth skinny sad saying soothsayer ↲

frying fish is funny on a friday↲

TURBOTYPE

Learn to Touch Type with the Talking Typing Tutor! In the few weeks since its release TurboType has established itself as the most popular typing tutor both at home and in school. With a site licence at £75 and a single user price of just £24.95 it is hardly surprising that this feature-packed programme is so popular! Demo available.

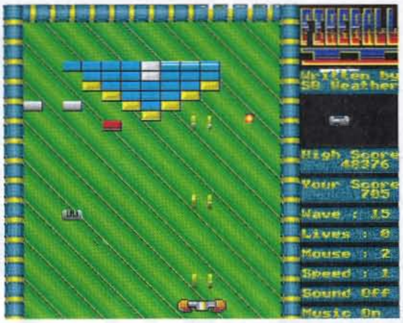
COMING SOON

MAH-JONG
- THE GAME -

DISC MECHANIC

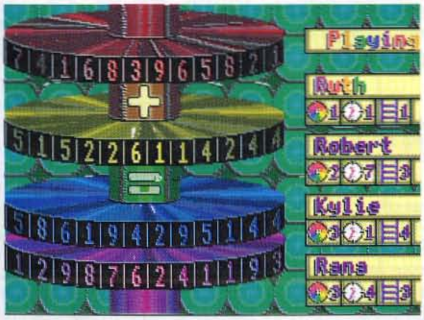
MicroDrive
DESIGNER

Mr DOO


Written by SB Weather
High Score 48376
Your Score 785
Wave : 15
Lives : 8
Mouse : 2
Speed : 1
Sound Off
Music On

FIREBALL II XTRA

You enjoyed Fireball, you loved and became addicted to Fireball II. Now you can go all the way and try to complete the 180 - Yes 180 screens of Fireball XTRA. The greatest breakout game of them all - with incredible digitised sound samples and fantastic graphics. Complete with screen editor to make even more screens! £14.95


Playing
Ruth
Robert
Kylie
Rana

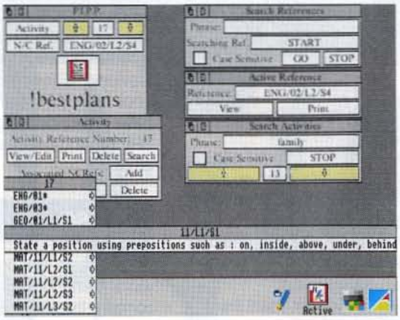
MENTAL MATHS

Maths has never been such fun! All the Attainment Targets of the National Curriculum for Mental Arithmetic are covered in this fun game. It looks, feels and plays like an arcade game and yet helps you to practice mental sums up to a prodigious level. Fun for all the family at any age or level. Ideal for the classroom. £19.95 single user. £45 Unlimited site licence.

!!NEW!!
Available December

SOUND FX MAKER

Construct sound
samples in many file
types using a graphic
interface. Samples for
all packages.
£39.95


PIPP
Activity
17
N/C Ref. ENG/02/L2/S4
!bestplans
Activity
Activity Reference Number: 17
View/Edit
Print
Delete
Search
Associated N/C Refs:
Add
Delete
Search References
Phrase:
Searching Ref. START
Case Sensitive
GO
STOP
Active Reference
Reference: ENG/02/L2/S4
View
Print
Search Activities
Phrase: family
Case Sensitive
STOP
13
Active

ENG/01*
ENG/03*
GEO/01/L1/S1

11/L1/S1
State a position using prepositions such as : on, inside, above, under, behind

MAT/11/L1/S2
MAT/11/L2/S1
MAT/11/L2/S2
MAT/11/L2/S3
MAT/11/L3/S2

PIPP

A must for any teacher toiling over the National Curriculum. PIPP is a database, planner and resource centre rolled into one. Fully RISC OS it allows teachers from all schools to search and link plans into the SAT's, POS's, and Examples. Key Stages 1,2,3 & 4 covered. Ready made cross-curricular projects. Regular N/C updates. Recording and assessment modules available soon. From £52. Demo available.

Touching experiences

Pam Turnbull goes back to the schoolroom to put a couple of typing tutors through their paces

No one would argue that being able to type properly is a great asset. Not only does it improve your speed of input but it's just as useful whether you want to write letters, books or even programs.

You might have felt slightly foolish to enrol on a typing course, but now two computer-based courses are making their way into schools and homes all over the country – Touch Type and Turbo Type.

Both aim to introduce the ins and outs of the Archimedes keyboard. This is useful for touch typists too, as qwerty keyboards do differ the world over – the *, #, $, ' and £ alter position never mind the more esoteric symbols and keys used in programming.

So leave that two-finger typing behind, advance on to the home keys and off you go.

Turbo Type

On loading two icons will appear – the program icon on the right of the bar and a files icon on the right. Click the program and you'll find yourself at the beginning of the course starting with combinations of keys known as the home keys – *asdf* on the left and *jkl;* on the right for the Archimedes.

Explore the menus first, as the options could make your life a lot easier. For example you can toggle the text style between large and standard – especially useful for the very young and sight impaired, and though I fall into neither category I found the larger typeface easier to follow.

In common with the more usual typing courses, learning is approached on a gradual scale including adding more and more characters to the initial home keys.

The Beginners option takes you through these exercises step-by-step so you can work at your own speed and level.

You can add more combinations to each exercise when you feel ready as well as choosing helpful aids via the Options menu. As you progress you'll explore the whole keyboard and choose which areas to concentrate on – everything, numbers only, letters only or go back to basics and master the home keys, which is the default option.

Outlining the home keys and showing the key areas are very useful. The key areas are a little difficult to decipher though. For example you'd use the little finger on your left hand to press `,1,q,a,z,~.!,Q,A,Z so the on-screen keyboard puts a green line around each area centering on the home keys.

I looked next at the sound options. The idea is that a synthesised voice tells you which keys to press next. You can have this in addition to the other aids or choose between them – useful for anyone with sight problems. CIS have just introduced a new option for people who have problems with colour differentiation too.

One especially nice option is the ability to turn off the speaker and hear the sounds through a set of headphones – a good way to stop your colleagues or family from lynching you.

There are a couple of excellent ways for typists to enhance their touch. One way of making sure that potential typists look at the paper they are copying from and not at the keyboard was to put blanks over the typewriter keys so you could not see the letters. This option is available here too.

Another tried and tested aid was to use a metronome to improve typing rhythm. You control the speed and volume from the options menu but I found it rather too fast.

Although I was typing at 50wpm and the metronome was set at 30 we still couldn't get in step. Perhaps that's why I never learnt to play the piano?

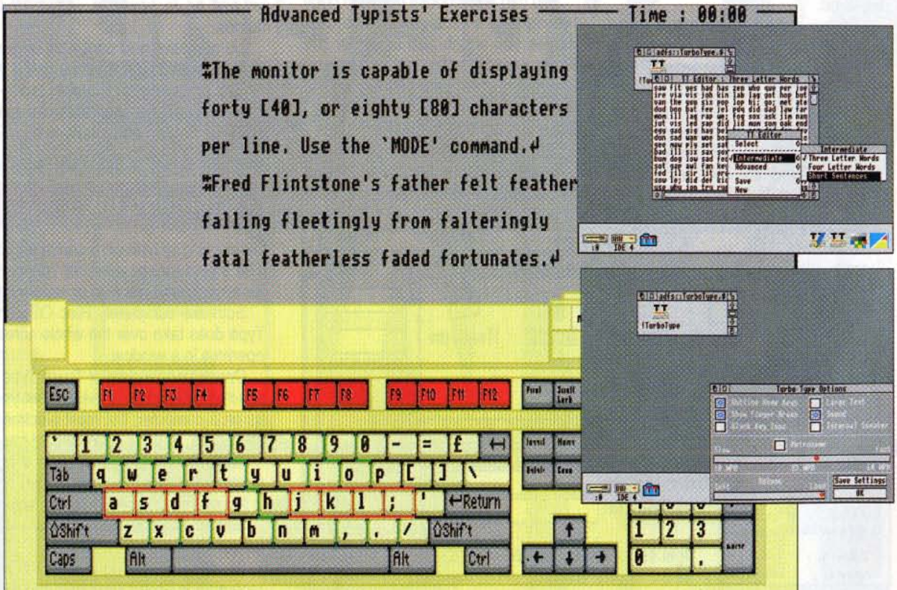
As you progress you can opt for Intermediate and then Advanced level. Each have more awkward keying sequences as well as introducing words, sentences and paragraphs. Again you set the length of each exercise and can quit at any time. An unusual, but useful, exercise can be found in the main menu when you choose the numeric option.

If you go on a standard typing course you'll be taught how to use the keyboard, but how about the

➤

Product: Turbo Type
Price: £24.95
Supplier: CIS, Unit 2a, 436 Essex Road, London N1 3QP.
Tel: 071-226 3340
Requirements: Risc OS machine

Product: Touch Type
Price: £43.44
Supplier: Iota Software, St John's Innovation Centre, Cowley Road, Cambridge CB4 4WS.
Tel: 0223 421542
Requirements: Risc OS machine



```
Advanced Typists' Exercises          Time : 00:00

*The monitor is capable of displaying
forty [40], or eighty [80] characters
per line. Use the `MODE' command.↲
*Fred Flintstone's father felt feather
falling fleetingly from falteringly
fatal featherless faded fortunates.↲
```

Turbo Type is simple to use and is tailor-made for those wanting to learn to type for everyday uses

➤

numeric keypad to the right? The numeric option takes you through the proper use of this – your home key is 5.

You can practise with single figures, calculations and numbers, as always being able to change the exercise length as you want to a maximum of 99 characters, figures and so on.

After each exercise you are given a run down on progress: Raw Typing Speed, Typing Speed – how fast you typed less your errors, Total Keystrokes, Typing Errors and your percentage accuracy.

This very nice and simple to use program is enhanced by an Editor with which to add your own text files, or edit the words, sentences and paragraphs already on offer.

Touch Type

More expensive than Turbo Type, Touch Type has most of the functions available to Turbo Typists. The icon is rather nice – a finger pushing the letter T key – and many of the options available are the same.

How do they compare? The first difference is the Display option which allows you to have Keyboard, Stats, Hands and Progress – percentage or proportional – on screen as you work.

The keyboard is needed if you want to do anything and should always be chosen, but it's nice to be able to deselect it should you just want the statistics from the previous exercise displayed.

The hand display option is very useful as it shows which finger you should be using for each letter – the correct one is highlighted with each new letter.

There are the same sound options – though with a little more control – as with Turbo Type, and the combination of the sound and the hands I found very useful for speeding up my typing and breaking a bad habit of looking at the keyboard.

Stats keeps a running tally of words per minute, maximum wpm and percentage of mistyped keys. There is also a bar chart showing the ratio of speed to accuracy.

Progress gives additional information regarding the percentage or proportion of successful keystrokes – the amount of grey shows how much additional practice is needed on a particular key.

Moving on to the Options submenu you'll be given the opportunity to choose to highlight keystrokes, home keys, ignore mistakes and save your typing.

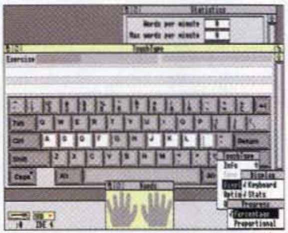
On the sound side you can specify the metronome time as well as opting for a typing sound, mistake sounds and a voice – this can also be adjusted regarding delay and pitch offset. As with Turbo Type, you might keep your popularity if you attach a pair of headphones. Altering the volume is trickier than with Turbo Type, as you have to use !Configure or use the F12 key and a couple of *commands.

When you first start the program you can press any key and the hand will show which finger you should be using and the digitised voice will call out the key name.

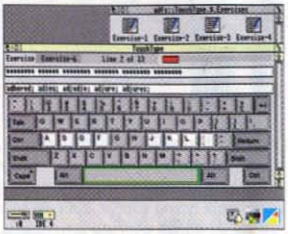
Alternatively you can load in an exercise provided in the file supplied. Either pick up the text file and pop it onto the icon or into the keyboard windows and it will load.

You can also choose between copy typing and exercise. The former makes you watch and listen for the keys, whereas the latter has you copying words from the top of the window – these words become * when you are copy typing.

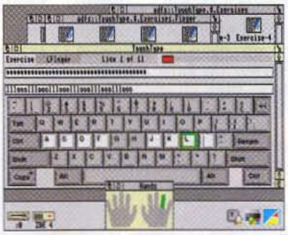
The manual holds the full text, so there is no reason for you to look at the screen or keyboard – this is required procedure for anyone planning to take a typing qualification.



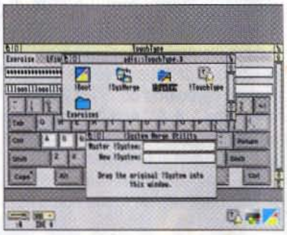
Touch Typist has a range of options ...



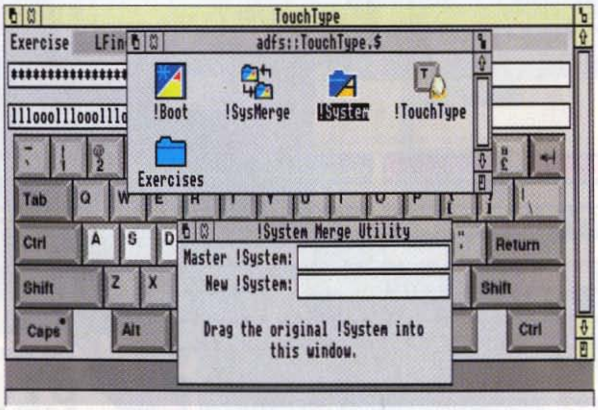
gives a variety of exercises ...



shows you the right finger to use ...



and is as versatile as you want.



Master !System:

New !System:

Drag the original !System into this window.

Hit the wrong key and it will turn red. If you have chosen the ignore mistakes option you can type on – no deletion is possible with this program. Otherwise you are not allowed to enter anything but the right key.

A bar at the top of the typing window indicates how far you are through the exercise. As you'd expect, the exercises progress from home keys to more complicated sentences, practice especially for one finger and on to agendas, letters and memos.

You can save and print work in the usual way which is extremely useful if you are practising for a typing examination, as you can see the exercise text, your version and statistics showing how you did.

There is no editor with Touch Type, but as all the files are simple text files created in !Edit you can modify and add at will.

The sound option is very good and Iota have also thought about other special needs too.

Shift+Break will load the program without having to click the icon and upper case letters are spoken in a slightly lower pitched voice, whereas function keys will take the place of other mouse and icon specific tasks – very useful for the partially sighted.

Iota will supply a talking manual on disc if asked. While the colour blind can still see the key highlight and wrong key they are a different colour and shape – useful for anyone with a mono monitor.

Summing up

By learning to type on a computer you'll be saving the world quite a few trees. The sound makes it fun for younger would-be typists and is a useful addition for anyone with reduced or impaired vision.

Both are completely Risc OS compliant and multi-tasking, although Turbo Type does take over the whole screen for each exercise, whereas Touch Type operates in a window.

One major criticism of Touch Type is the inability to correct mistakes by back spacing or deletion. I realise that you cannot do this as easily on a typewriter as on a computer, but most electronic typewriters can correct characters if not sentences, and the option would have been useful.

Basically the programs have slightly different approaches. Turbo Type is a simple tutor which is easy to use, while Touch Type aims to teach you to type in the manner required to pass typing exams.

Neither program tackles tabs – which is understandable as the subject can be quite complex.

For anyone wanting to learn the basics of typing for their own benefit I would recommend Turbo Type, but should you want to practise for exams, use such a program in schools or have a visual handicap, I would opt for Touch Type.

COLOURJET 132
FF
LF
ON LINE
COREL DRAW! PROCESS COLOR CHART
COREL
Printed by Integrex Colourjet
COREL DRAW!

COLOURJET 132

COLOUR INK JET PRINTER

Compatible with:–

- IBM pc
- Archimedes
- Nimbus
- BBC Micro
- Amiga
- Apple Mac (serial version)

LOW COST
LIST PRICE
from £579 + VAT

Low Operating Cost

Windows 3 Driver available

EMULATES OTHER COLOUR PRINTERS EG. IBM 3852, Canon PJ1080A, Quadjet
PRINTS OVERHEAD TRANSPARENCIES

EDUCATIONAL DISCOUNTS AVALIABLE

INTEGREX LTD., CHURCH GRESLEY, SWADLINCOTE,
DERBY'S DE11 9PT
Tel (0283) 551551
Fax (0283) 550325
T/x 341727 INTEGX

A touch of

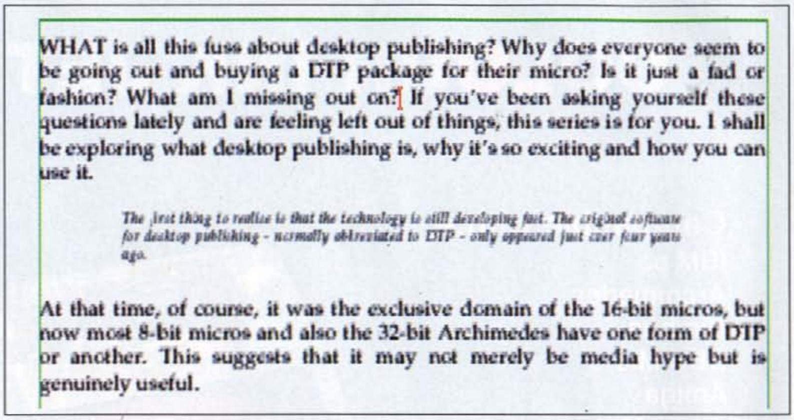
WE'VE seen how one ruler can be used to give a simple format to a region of text as it is typed in. But what if you want to change your mind? Or suppose the text has been typed by someone who didn't know what format you wanted?

Using a ruler you can reformat any selected section of text – in the same way as you can apply effects – and implement all the margins and tabs on one ruler with one action, rather than the piecemeal approach of Effects. To try this out, we'll set up a paragraph to look like a quotation.

Select the New ruler option and set up first line, left and right margins about 2cm from the relevant edge of the frame. Then click in the box labelled Ruler. Change the name to Indents and click on OK.

Next, working on the imported sample text, highlight the second paragraph – four clicks will do it – and via the Effects submenu set the text size to 12pt and the font to Pembroke.Medium.Italic.

Using the ruler to set the margins is simple. With the text still highlighted, go to the Ruler submenu – in Impression 2 it's the Style submenu – and click on the last entry, which should now be Indents. The settings on your new ruler will be applied to the selected text, which should now look something like Figure I.



WHAT is all this fuss about desktop publishing? Why does everyone seem to be going out and buying a DTP package for their micro? Is it just a fad or fashion? What am I missing out on? If you've been asking yourself these questions lately and are feeling left out of things, this series is for you. I shall be exploring what desktop publishing is, why it's so exciting and how you can use it.

The first thing to realise is that the technology is still developing fast. The original software for desktop publishing – normally abbreviated to DTP – only appeared just over four years ago.

At that time, of course, it was the exclusive domain of the 16-bit micros, but now most 8-bit micros and also the 32-bit Archimedes have one form of DTP or another. This suggests that it may not merely be media hype but is genuinely useful.

Figure I: Changing text with ruler and effects

Style trial

Now comes the crunch. If all you plan to do with your DTP software is write letters or straightforward text, then Effects and Rulers will be all you will need.

But if you'll be preparing anything with a more complicated layout and typographical variation, such as a book or magazine, using the Effects and Ruler submenus to apply text fonts, sizes and formatting individually to myriad headings and subheadings is going to be tedious in the extreme.

Styles are the powerhouse of any DTP system. You can think of them as rulers with groups of effects built in, but they are much more. In fact, rulers in Impression were designed as cut-down styles rather than the other way round. Although the demonstration version doesn't use styles, they are too important to be left out here.

All text has a style set, even if it is only the default called BaseStyle. Other styles are applied on top of it and any attributes defined in the overlying styles replace those particular ones from any style below. Any attribute not explicitly defined will show through from the definition below.

That may sound complicated, but it isn't really. Consider Figure II, an artificial example, where styles have been applied one after another. The whole text starts out in BaseStyle, Italic has been specified only as a different font, the style 18pt sets only the font size without changing the font but 16pt/faint/bold/u-line sets not only a grey text colour but also an intermediate font size, bold type and underlining.

You can set as many or as few attributes as you like, and assign a meaningful name to the style to help you remember when to use it. You can also define a key shortcut to let you apply your own styles from the keyboard.

Figure III shows what you see if you click on Edit style in the Style sub-menu in a new document. As before, the ruler is at the top. The new dialogue box looks fairly innocuous and the only unfamiliar item is the line Space above paragraph.

However, you may have noticed the scroll bar, which suggests that there is more to come. Figure IV reveals the wealth of options unrolled from the dialogue box. As this is for the default style, almost all the attributes are set to some value – and you can't turn them off.

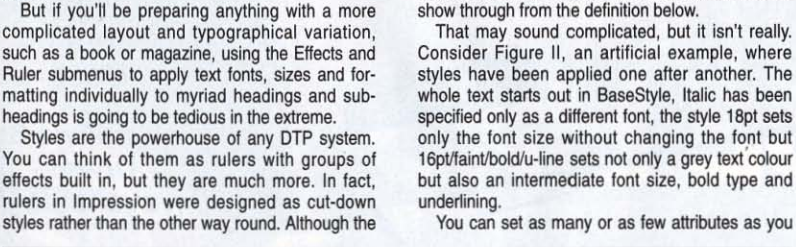
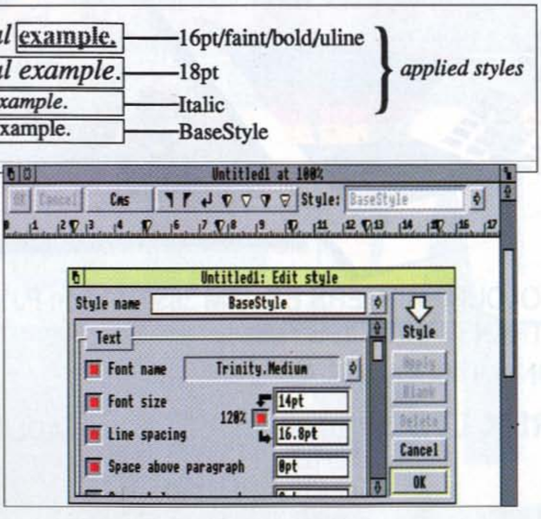

A short but meaningful example.
16pt/faint/bold/uline
A short but meaningful example.
18pt
A short but meaningful example.
Italic
A short but meaningful example.
BaseStyle
applied styles

Figure II: Overlaying styles



Style name: BaseStyle

Font name: Trinity.Medium

Font size: 14pt

120%

Line spacing: 16.8pt

Space above paragraph: 0pt

Figure III: The Edit style dialogue box

A little list

Let's look at a few of the items on the style list. Some, such as Font name, size and spacing, we know about from the Effects menu. Others will crop up in later chapters. Space above paragraph and Space below paragraph let you define how much extra space will be inserted before and after a Return character.

On a typewriter you can only insert vertical spacing in full or half space increments. But with DTP you can be precise about the vertical distance between text paragraphs, headings, text and so on.

Font aspect ratio is a description of how wide the letters are compared with their height. Similar to the effects Condensed and Expanded, the styles allow more variety. With these you can stretch or squash a heading or a piece of text to fit a given space.

Font colour and background colour are fairly straightforward – we met the colour picker earlier. Keep together is useful if you are writing a lengthy document with headings and tables, as you can define this attribute within a heading or table style.

This ensures that a heading or part of a table at the bottom of a page will be taken over to the next page. Lock to linespace grid is a more advanced

This month Bruce Goatly adds some bells and whistles to your DTP knowhow

Key tip – Style application

When using the key shortcuts to apply styles, one press turns the style on, another press turns it off.

style style style

feature for multi-column work, where it is important for text lines in neighbouring columns to line up. This gives a neater appearance than if the lines are slightly out of step.

Under Text format the Alter ruler button simply defines whether the text ruler can be edited when the style is being altered. For example, if you're setting a style to change the text colour, the ruler is probably irrelevant.

With Rule-off you have a way of including a horizontal line across the whole text width after each Return character. Some experimentation will make this clear. Note that the offset value is positive for upwards, negative for downwards.

In Style control you have the chance to stop a style from appearing on the style menu. For a less cluttered look, as well as the ability to assign to the style a key shortcut of your choice, just press Shift or Ctrl or both and another key. Not all key combinations are available, and redefining an existing one will replace it. The shortcut box isn't editable either.

Style changes

What if you alter some of the attribute values in BaseStyle, for instance changing the font size to 18pt? The default style will be altered and if you click on OK any text in the document will use the new definition as its basis.

Fine, but what if you change the style's name to 18pt too? This won't create a new style with the new name – Impression simply calls the default style 18pt instead of BaseStyle. You can edit the style name as any other attribute.

To make a new style you have to select New style from the Style sub-menu. This brings up a dialogue box with no attributes set and a style name of Untitled. Click the relevant buttons and type in values. You don't have to start from scratch, though, as a new style can be based on an existing one. If you click Menu on the style name, or on the arrow to the right of the name, you can choose from the list. To take a familiar example, open a new document and call up the New style dialogue. Click Menu as indicated, click on Underline and scroll down to the Underline option. Click on the radio button against 2, then scroll right down to the bottom, clicking in the text box beside Key short-cut. Then press the Ctrl, Shift and F1 keys simultaneously. You should see <Ctrl>+<shift>+F1 appear in the box. If not, try again.

Finally, scroll back to the top naming the new style Emphasis and click on OK. You've now set up a new style called Emphasis, based on the style Underline but using a double underline. You've also given it a key shortcut of Ctrl-Shift-F1.

To create a new style and at the same time see its effect on text, mark a section of text and click on Apply not OK in the style editor once you've set some attributes. What happens if you click with Adjust rather than Select?

Styles are applied in the same way as effects, whether at the caret or to a marked section. The difference between styles and effects – and one to watch out for – is that styles act globally throughout a document. So once you have used one, perhaps to define sub-headings, if you absent-mindedly change it later for another purpose all your sub-headings will change too.

Having set up your own styles, you'll want to save them. That's easy – just save the document they're in. Styles are stored as part of the document.

Moving around

Loading the styles from one document into another is rather trickier. First you need to identify the style loader icon – it's the big downwards arrow in Figure III. Then you drag the filer icon for the document containing the required styles on to the style loader icon.

However, you now have the styles from both documents in one place – styles with duplicate names have a number after them – so you'll probably want to delete some.

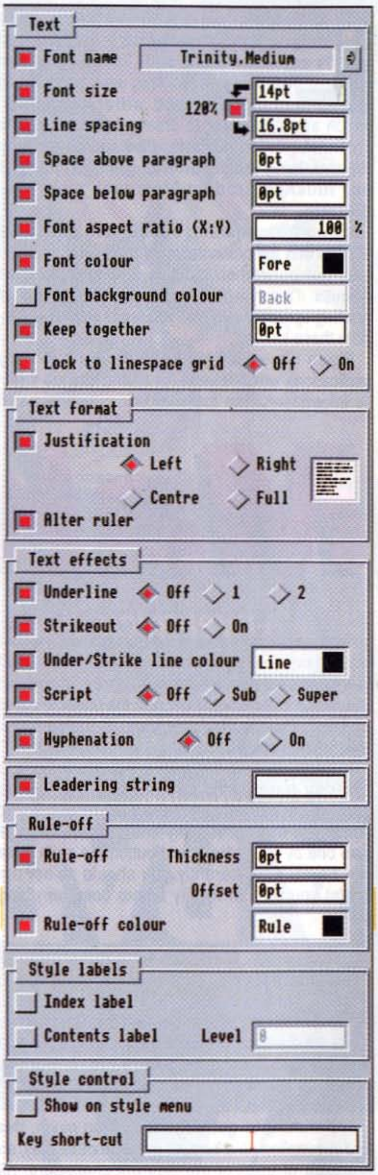
Any unwanted style can be deleted, as long as it's unused, by selecting it under Edit style and clicking on the Delete button.

If you regularly prepare something like a newsletter or bulletin, with a consistent appearance and the same named styles, you might want to type the style changes into the text before importing it into a master (blank) DTP document. This is also handy if several different people will be preparing separate sections of a longish document to be assembled at the DTP stage: Use pre-arranged names for style changes.

Most of the Archimedes DTP programs let you do this, but each has a different command structure. Impression's, for instance, uses {"Bold" on} and {"Bold" off}, although you can get away with simply {"Bold"} for both as long as you are careful about whether you are switching the style Bold on or off. There's great scope for mistakes here.

You can experiment with this on the sample document, using !Edit to add Main Heading and Sub-Heading styles, saving the text file to a spare disc and then dragging the icon into an empty Impression frame.

If you found this section confusing or heavy going, don't worry too much – you can always read it again, and at least you may now realise the power of styles in DTP.



Text
☑ Font name Trinity.Medium
☑ Font size 14pt
120% ☑
☑ Line spacing 16.8pt
☑ Space above paragraph 0pt
☑ Space below paragraph 0pt
☑ Font aspect ratio (X:Y) 100 %
☑ Font colour Fore
☐ Font background colour Back
☑ Keep together 0pt
☑ Lock to linespace grid ◆ Off ◇ On

Text format
☑ Justification
◆ Left ◇ Right
◇ Centre ◇ Full
☑ Alter ruler

Text effects
☑ Underline ◆ Off ◇ 1 ◇ 2
☑ Strikeout ◆ Off ◇ On
☑ Under/Strike line colour Line
☑ Script ◆ Off ◇ Sub ◇ Super

☑ Hyphenation ◆ Off ◇ On

☑ Leadering string

Rule-off
☑ Rule-off Thickness 0pt
Offset 0pt
☑ Rule-off colour Rule

Style labels
☐ Index label
☐ Contents label Level 0

Style control
☐ Show on style menu
Key short-cut

Figure IV: The style options

It's worth mentioning that Acorn's Desktop Publisher and Ovation also have facilities for applying text attributes, both singly and assembled as styles, that correspond broadly to Impression's Effects and Styles options.

If you have only an occasional need for a change of attribute it's useful not to have to define a style for each small variation. On the other hand, styles make it easy to achieve a uniform appearance throughout a complex publication.

Making a goo

LAST month, we looked at choices when defining the Picture format – the way data is expressed in a cell. This is just one of many areas that can be defined in Schema and other packages, which allow the user to create the most legible spreadsheets. In this article we will go through the remaining options we can call upon to make our finished product look even more presentable.

It's worth remembering that all these options are dealing with the presentation of material. If you find their number rather daunting all packages have defaults. It's only when you become more proficient at using spreadsheets that you really start to appreciate these extras.

Figure I is a typical edit window found in many applications which is used for editing various stylistic information. The top line defines two items: It gives the physical name of the spreadsheet you are working on – not the filename – but the name used to interlink references between spreadsheets. In this case it is a spreadsheet with the physical name *Untitled1*. Plain is the name given to the particular style you are about to modify.

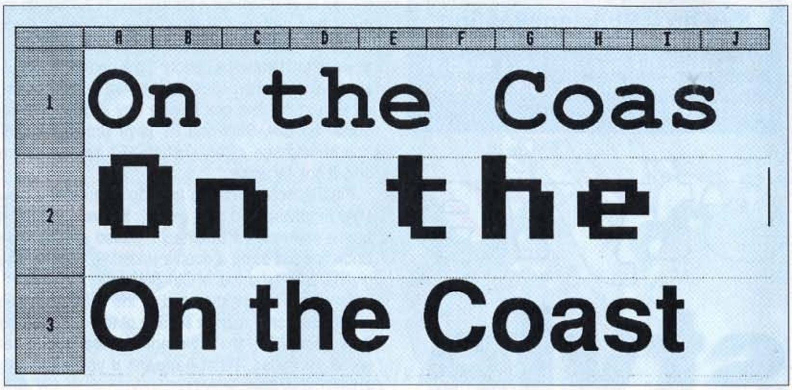


Figure III: Points don't equal sizes

Immediately below the Try window are the four boxes for selecting the particular state you wish to modify: +ve, -ve, 0 or text. Using the mouse Select button you can choose any one of these or more than one by using the Adjust button. As each state can be set up differently you should select the one(s) you wish to modify before doing anything else.

Typeface

For those who are not familiar with typefaces Figure II is a small selection of various types. The first two lines are printed using the System Font and unless otherwise specified it's normally the font that all applications default to.

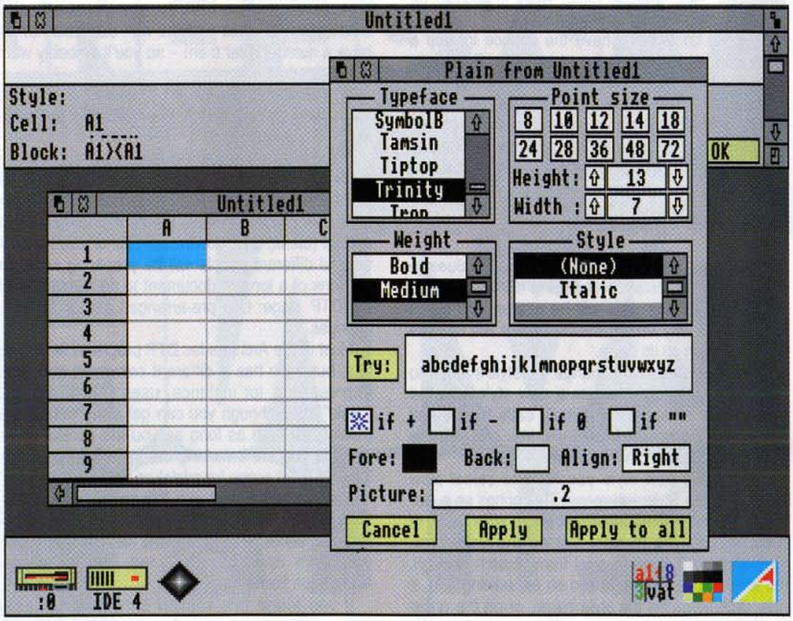
Not wishing to get side tracked too much, this font is supplied as a bitmap, or put another way, as a picture of each of the different characters. All other fonts which Acorn – and other developers such as the Electronic Font Foundry – supply are outline fonts. These are much superior in clarity and can also be scaled to different widths and heights.

In this particular example the application looked at my system's Font Manager and included a list of all the typefaces it found. Note that it's a scrolling window with a scroll bar to the right of the typeface names. By using the left hand mouse button (Select) you can now choose the particular typeface you require. In the example System has been selected.

Having made your selection for the typeface, once again the application looks at your !Fonts file to ascertain the weight options for the typeface selected. In the example we have opted for the Trinity font which has several weight options . If we had selected Corpus, for example, we might have had the two options *Bold* or *Medium* to choose from. Once again, using the mouse, you can select the one you require.

The size of the text can be selected from a list or you can create your own. Ideally you would select a point size nearest to what you require and then, using the up and down arrows to the right of *Height* and *Width*, adjust the size to your requirements. Note that the selected font System has a height of 13 point and a width of 7. This, for the System font, is about the optimum for all standard display and printing options within Schema.

While you are experimenting with typefaces, weights and point sizes you'll notice a button called *Try*. This is a very useful and quick way of having a look at what you have selected to see if it meets your needs before including it in your spreadsheet. Each line of Figure II is produced using point sizes



Style:
Cell: A1
Block: A1>A1

Plain from Untitled1

Typeface: SymbolB, Tamsin, Tiptop, **Trinity**, Tron

Point size: 8, 10, 12, 14, 18, 24, 28, 36, 48, 72

Height: 13
Width : 7

Weight: Bold, **Medium**

Style: **(None)**, Italic

Try: abcdefghijklmnopqrstuvwxyz

☒ if + ☐ if - ☐ if 0 ☐ if ""

Fore: ■ Back: ☐ Align: Right

Picture: .2

Cancel Apply Apply to all

Figure I: The text style edit window

Barry Mallet continues his look at styles for cells

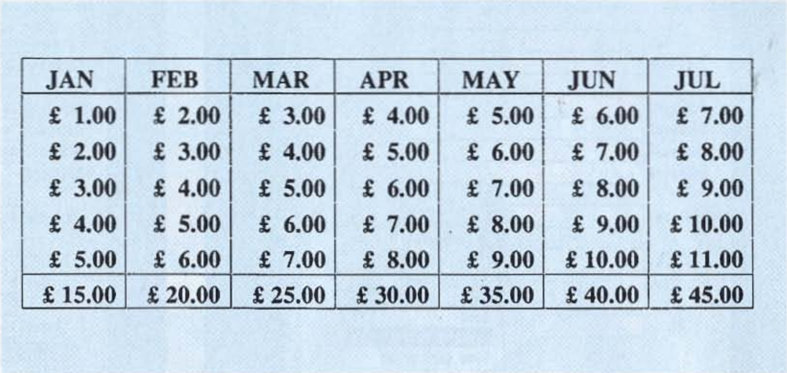
d impression

10, 12, 14, 18 and 20. These will inevitably appear different when various printing reductions have taken place but the point size is a UK dimension for type measurements.

By way of interest the units of type measurement used in the UK and USA are the point and the pica em. On the continent the corresponding units are Didot and the Cicero.

The Didot point is slightly larger than the British American point, but the principles of their application are exactly the same. There are 12 points to a pica em. This measures approximately one sixth of an inch.

It shouldn't be assumed that a 72 point character will appear as a one inch high character. When type used to be cast in metal, the printing surface was mounted on a block of metal called the body. The type size – measured in points – refers to this metal body rather than the character face itself. The proportion of the face on the body varied considerably from one typeface to another. Figure III shows three rows of a spreadsheet produced in 72 point Corpus, System and Homerton. Note both the different size of each face and also its position in the cell, that is the body.



JAN	FEB	MAR	APR	MAY	JUN	JUL
£ 1.00	£ 2.00	£ 3.00	£ 4.00	£ 5.00	£ 6.00	£ 7.00
£ 2.00	£ 3.00	£ 4.00	£ 5.00	£ 6.00	£ 7.00	£ 8.00
£ 3.00	£ 4.00	£ 5.00	£ 6.00	£ 7.00	£ 8.00	£ 9.00
£ 4.00	£ 5.00	£ 6.00	£ 7.00	£ 8.00	£ 9.00	£ 10.00
£ 5.00	£ 6.00	£ 7.00	£ 8.00	£ 9.00	£ 10.00	£ 11.00
£ 15.00	£ 20.00	£ 25.00	£ 30.00	£ 35.00	£ 40.00	£ 45.00

Figure IV: Applying a text style to all cells

Presentation and colour

Two small windows are displayed immediately below the Edit window. The Style editor window is accessed by pressing the Menu button on the mouse while the pointer is in the lower half of the window. This enables four further options.

The foreground colour is the colour the data is displayed in and is adjusted via the Foreground option. Here you have a palette of 16 different colours. Alternatively, you can create your own – presuming your screen mode will allow you to – by using the Select button to adjust percentages of red (R), green (G) and blue (B) guns to be displayed.

The rectangle to the right of the OK button shows you the colour you have created. Once you have the right colour, using the select button click on the OK box. The colour you selected for the foreground should now appear in the edit window in the box called Fore.

The background colour can be adjusted in a similar manner only this time select Background.

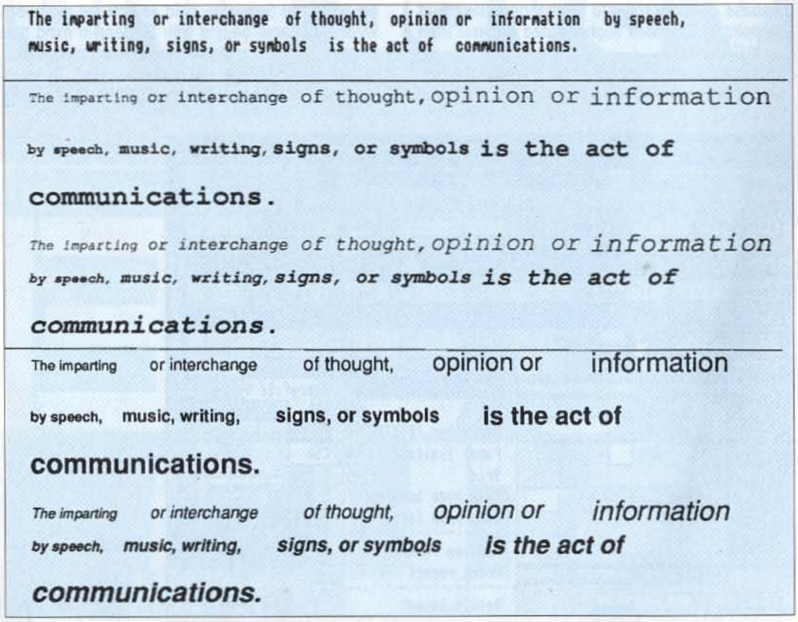
Via the same menu used to select foreground and background colours and default picture styles there is one other option for selecting the alignment of text or data. Here you have three options Left, Right or Centre: A bit like voting really.

Left aligned gives you text, or data, which starts at the left hand edge of the selected cell. Right aligned gives you data which always finishes up against the right hand edge of the cell and Centre produces equal spaces to the left and right of the data within a cell. An example could show an interesting problem here. In cell A1 I wish to enter the text string: *"On the Coast of Coromandel where the early pumpkins blow".* This text is too long for entry into cell A1 and it must therefore overflow. But into which cells? If it is left justified the left hand edge of cell A1 is the start point therefore it will correctly overflow into cells B1, C1, D1, E1, F1, G1 and H1. I am assuming that no data was previously entered into these cells. If it had, A1 would not be allowed to overflow.

If right justified the right hand edge is fixed so it cannot overflow. The left hand edge is fixed so it has nowhere to go. You end up with *On the C.* Centre justified exhibits a similar problem.

When you have set all of these items to the way you require them, using the Apply button will change the features you have modified to the particular state you chose. Alternatively you could select the option *Apply to all* which would modify the style for all four states.

Next month: *The best way to present your material will be covered further.*



The imparting or interchange of thought, opinion or information by speech, music, writing, signs, or symbols is the act of communications.

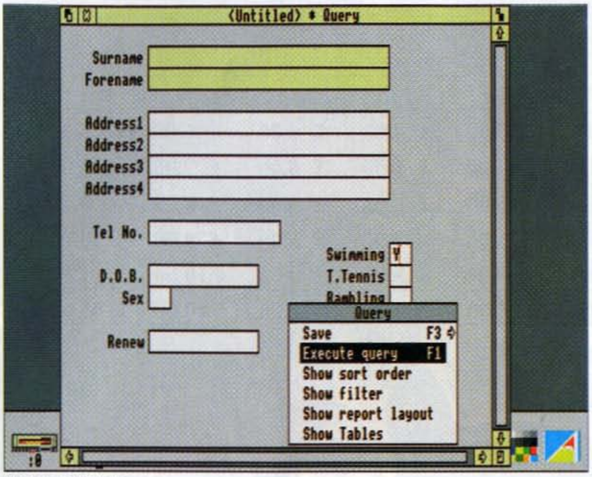
The imparting or interchange of thought, opinion or information by speech, music, writing, signs, or symbols is the act of communications.

The imparting or interchange of thought, opinion or information by speech, music, writing, signs, or symbols is the act of communications.

The imparting or interchange of thought, opinion or information by speech, music, writing, signs, or symbols is the act of communications.

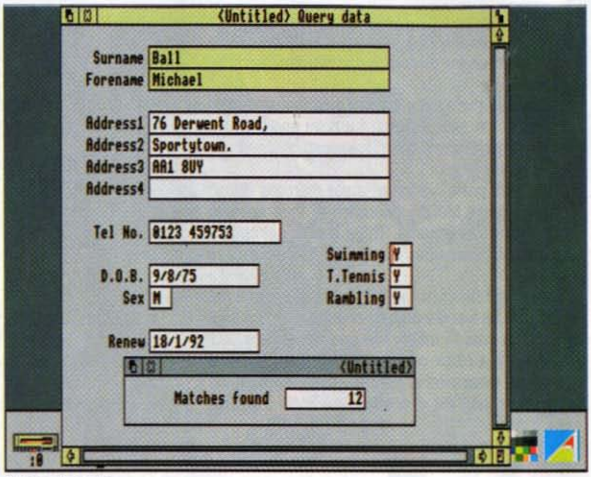
The imparting or interchange of thought, opinion or information by speech, music, writing, signs, or symbols is the act of communications.

Figure II: Various styles and sizes


(Untitled) * Query
Surname
Forename
Address1
Address2
Address3
Address4
Tel No.
D.O.B.
Sex
Renew
T.Tennis
Rambling
Query
Save F3
Execute query F1
Show sort order
Show filter
Show report layout
Show Tables
:0

Swimming Y

The query window


(Untitled) Query data
(Untitled)
:0

Surname Ball
Forename Michael
Address1 76 Derwent Road,
Address2 Sportytown.
Address3 AA1 8UY
Address4
Tel No. 0123 459753
D.O.B. 9/8/75
Sex M
Renew 18/1/92
Swimming Y
T.Tennis Y
Rambling Y
Matches found 12

Selected records

The wheat fr

LAST month we discussed one common use of databases: Selecting records using a condition then merging information from those records to personalise a reminder letter. This is a basic facility of any database.

Now let's look at the sort of selection criteria available and how selected records can be used to compile reports, again using the Youth Group database. It is appropriate to change software at this point to the more sophisticated Squirrel from Digital Services.

Squirrel uses the term Query to describe the process of selection. There are two types of Query: Simple ones – looking for matches to particular fields – and complex ones.

To access the details of all members of the swimming section of the Club select Define Query from the Squirrel menu or press F4 to give a query window. This looks like a blank database record. Details to be matched are entered here, other fields are left blank.

An asterisk * means any number of characters, so S* in the Surname field selects all members whose surname begins with S. Bear in mind that queries are case sensitive so surnames beginning with a lower case s would not be selected. To select members who go swimming, click select on the Swimming field and type Y. Then select Execute query from the query menu or press F1.

A complex query could be used to select potential participants in a girls under-16 hockey team. Here female members with a birth date less than 16 years before a qualifying date – say, 1st February 1992 – are required.

Complex queries

The process starts like before. Type F in the Sex field of the query window to choose girls. Then select Show filter from the query menu to open the filter window, allowing a complex condition to be set up. Select the DOB field in the query window and drag it to the right hand side of the condition already set in the filter window, ready for the age condition to be entered.

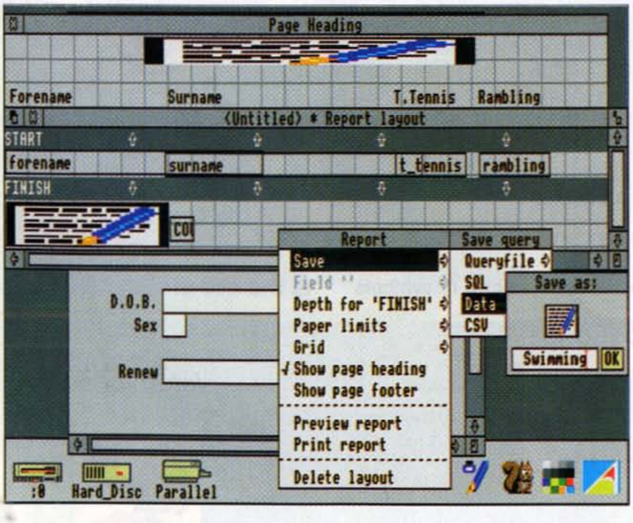
To be under 16 on the qualifying date a member would have to be born before 1st February 1976, so the condition is edited to:

```
d_o_b > '1/2/1976'
```

Note that the date is in quotation marks and the year is typed in full. The condition is confirmed by pressing the Return key before selecting Execute query in the query menu.

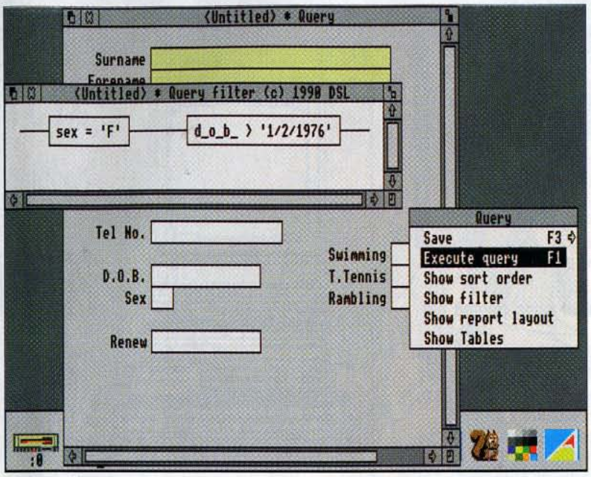
Squirrel then displays the records of potential members of a girls under 16 hockey team – as there are only four, a little collaboration with neighbouring clubs seems necessary.

Most databases contain some sort of a report generator. We want to use Squirrel to produce a document giving details of the swimming section. From the database window select Define query for the query window, type Y in the Swimming field to


Page Heading
Forename
Surname
T.Tennis
Rambling
(Untitled) * Report layout
START
Forename
surname
t_tennis
rambling
FINISH
CO
Report
Save
Field ""
Depth for 'FINISH'
Paper limits
Grid
√ Show page heading
Show page footer
Preview report
Print report
Delete layout
Save query
Queryfile
SQL
Data
CSV
Save as:
Swimming
OK
D.O.B.
Sex
Renew
:0
Hard_Disc
Parallel

The finished report layout

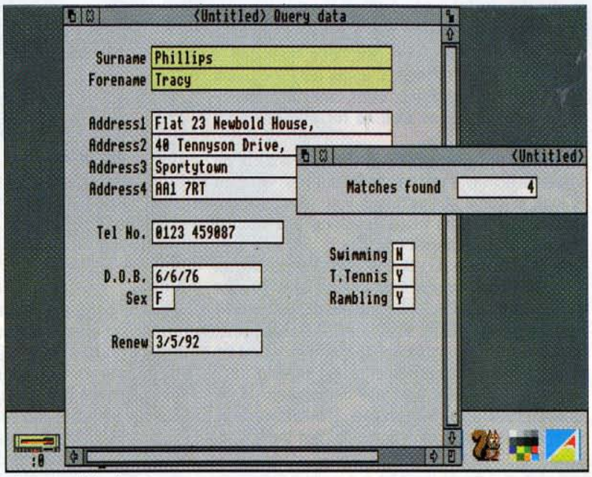
Continuing his in-depth tutorial, John Allen gets to grip with the art of selection



sex = 'F'

d_o_b_ > '1/2/1976'

Setting a filter



Surname Phillips
Forename Tracy
Address1 Flat 23 Newbold House,
Address2 40 Tennyson Drive,
Address3 Sportytown
Address4 AA1 7RT
Tel No. 0123 459087
D.O.B. 6/6/76
Sex F
Renew 3/5/92
Swimming N
T.Tennis Y
Rambling Y
Matches found 4

The potential hockey team

om the chaff

select swimming section members and select Show report layout to edit the report form.

In this case a simple list of section members is needed, together with an indication of the other sections they have joined. The other, unwanted, fields are removed from the report by clicking menu over them and selecting Delete.

The fields are rearranged by dragging them with the mouse. Fields can overlap, but information will only be printed from the box on the top of an overlap.

Next the titles are rearranged to match the fields, by selecting Show page heading from the menu and swapping, deleting those not required. The headings are dragged down a couple of lines to leave space for a title, it is easier to align them with the grid turned on.

In the swim

The heading has to be produced in a text file by !Edit. Its icon is dropped into the report and sized by the adjust button on the mouse. A file containing the text Number of members is produced and positioned in a similar manner.

To check positioning select Preview report from the report menu to see the finished layout on the screen.

Finally, to count the number of swimmers, the Swimming field is dragged from the query window to alongside the bottom text icon. Count is then selected from its function menu – click menu over the new field to obtain the menu.

The report can be printed in two ways, both require a Risc OS printer driver to be installed. If the database uses outline fonts, select Print report from the reports menu.

Strangely this uses the database window background colour on the printer, so it's probably best to stick to white. Printing a database which uses the normal system font is a little more devious. Use the report menu to select the option of saving the query as data. But instead of dragging the file icon to a directory window, drag it to the printer driver icon.

All database report systems are different and are most suited to particular types of report.

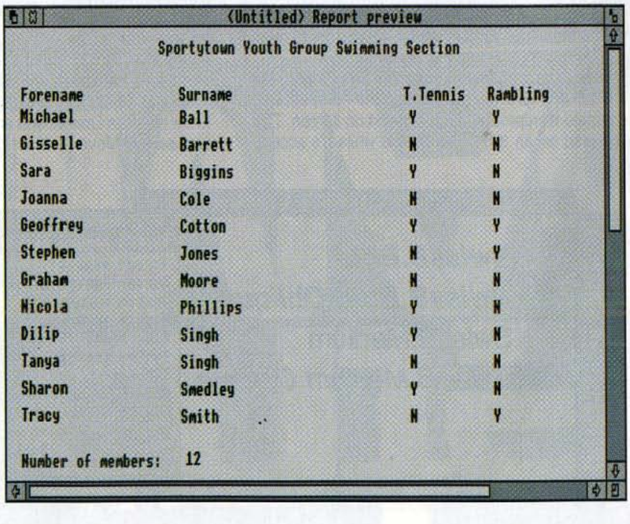
Junior Database only has the simplest of mechanisms, allowing you to print some or all of the fields of the whole database or a selection.

Squirrel is very flexible in the way it can sort subsets of data, but it cannot have records appearing more than once in a report and the functions are rather limited. For example, we were able to count the number of swimmers, but we couldn't provide separate totals for boys and girls.

Multistore and Flexifile allow macros to associate data together, so they can perform a more comprehensive range of calculations. They are not as good for producing reports where data is associated together though.

PipeDream is the most comprehensive package. That's not surprising since it has all of the facilities of a spreadsheet and a wordprocessor. It can, however, be difficult to use for some types of report.

***Next month:** The mysteries of relational databases.*



Sportytown Youth Group Swimming Section

Forename	Surname	T.Tennis	Rambling
Michael	Ball	Y	Y
Gisselle	Barrett	N	N
Sara	Biggins	Y	N
Joanna	Cole	N	N
Geoffrey	Cotton	Y	Y
Stephen	Jones	N	Y
Graham	Moore	N	N
Nicola	Phillips	Y	N
Dilip	Singh	Y	N
Tanya	Singh	N	N
Sharon	Smedley	Y	N
Tracy	Smith	N	Y

Number of members: 12

Preview of the report

Moving on to practical applications, Steve Bruntlett shows how to create your own business cards

EXT *
FONT
M
E.STANDARD
M

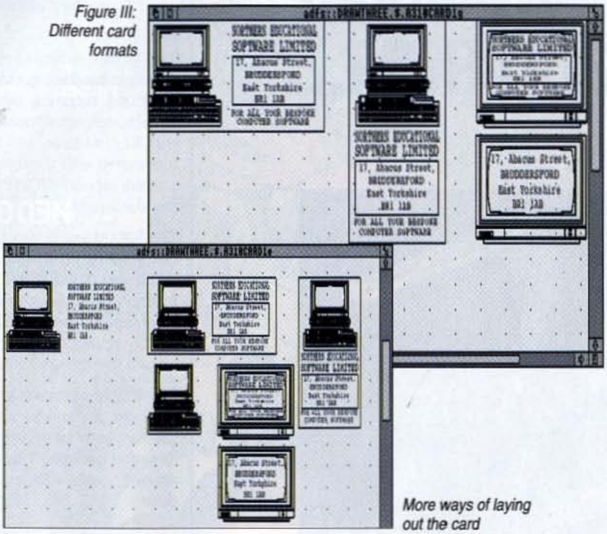


Figure III: Different card formats

More ways of laying out the card

business

and dragging the box to the shape and size required.

The alterations include an outline box around the address. The text has been shortened vertically and left in upper and lower case – it would be too heavy all in capitals.

Another way to vary the layout is to use more than one font. This would highlight different parts of the text – but don't get carried away. You could always reverse the text so that parts or all of it are white on a black background. The thing to do is experiment and see what looks best.

Using menus

If you are using the menus quite a lot you might find that the text is redrawn very slowly. This is due to having too small a size for the Font cache where the text is calculated in memory for each new size of font used.

If there is not enough room for all the font styles and sizes you want to use, the first ones calculated are dumped to make room for the new ones.

The font cache can be enlarged by using the Task Manager accessed from the bottom right hand of your screen. If you adjust this to 128k you should have enough room to hold several different font sizes in memory without them having to be recalculated each time

Take note that if you are working with more than one disc, as well as using different font sizes as you rescale, the 'Message from ADFS' warning window will appear on screen. This will ask you to insert the disc with the fonts on, 'App1', from time to time, so keep it handy.

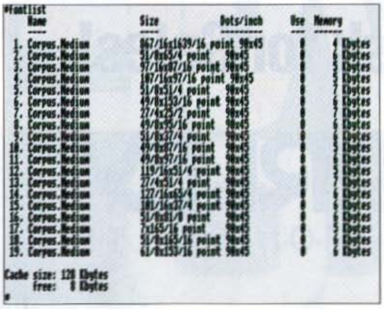
A better way of working is to copy the !Fonts and !System directories from Applications Disc 1 into a specially created ramdisc of about 256k. See your User Guide if you're not sure about this, beacause it saves an awful lot of disc swapping.

Loading your previously designed business cards could take more than a minute. This is because the computer works out the font sizes and displays them on the drawing one by one.

If you want to see just how many fonts your designs use, press function key F12 and type 'Fontlist' after the * prompt. The sizes used and how much memory they occupy will be displayed.

Remember that most other computers can only use set point sizes which have to be loaded individually from disc. The Archimedes calculates different font sizes and proportions as and when you need them. The list below only represents the fonts used in the final business cards.

The last version of the business card that I produced was the one where the monitor of the drawing becomes the border of the card.



```
*Fontlist
    Name              Size                 Dots/inch   Use  Memory
    ----              ----                 ---------   ---  ------
 1. Corpus.Medium     867/16x1639/16 point 90x45        0     4 Kbytes
 2. Corpus.Medium     51/8x65/4 point      90x45        0     6 Kbytes
 3. Corpus.Medium     97/16x87/16 point    90x45        0     5 Kbytes
 4. Corpus.Medium     107/16x97/16 point   90x45        0     5 Kbytes
 5. Corpus.Medium     51/8x51/4 point      90x45        0     7 Kbytes
 6. Corpus.Medium     49/8x153/16 point    90x45        0     6 Kbytes
 7. Corpus.Medium     27/4x25/2 point      90x45        0     7 Kbytes
 8. Corpus.Medium     49/8x95/16 point     90x45        0     6 Kbytes
 9. Corpus.Medium     51/8x37/4 point      90x45        0     6 Kbytes
10. Corpus.Medium     49/8x87/16 point     90x45        0     5 Kbytes
11. Corpus.Medium     49/8x97/16 point     90x45        0     6 Kbytes
12. Corpus.Medium     119/16x51/4 point    90x45        0     5 Kbytes
13. Corpus.Medium     27/4x51/4 point      90x45        0     7 Kbytes
14. Corpus.Medium     127/16x65/4 point    90x45        0     6 Kbytes
15. Corpus.Medium     101/16x37/4 point    90x45        0     6 Kbytes
16. Corpus.Medium     51/8x81/8 point      90x45        0     6 Kbytes
17. Corpus.Medium     7x165/16 point       90x45        0     5 Kbytes
18. Corpus.Medium     51/8x165/16 point    90x45        0     6 Kbytes
19. Corpus.Medium     61/8x153/16 point    90x45        0     6 Kbytes

Cache size: 128 Kbytes
      free:   8 Kbytes
*
```

Font list showing font sizes

The monitor has been magnified by a factor of 2 and is perhaps a bit square though it can always be stretched a bit if necessary. It might be better with just an address on the screen, so I have included a different version for comparison. These might be used as address labels or as identification stickers rather than business cards.

The final part of the process is the printing. You'll generally need to install a printer driver which interprets all the information on the page and converts it into a form which is right for your printer. For further details see your A3000 User Guide.

You can print out by selecting the Misc menu from the Draw menu and then selecting Print. The Print box shows what kind of driver is installed – if any – and offers a box in which to type the number of copies you want to print.

If you find the top of your printout is missing check your printing area under the Misc menu by clicking on Paper Limits and then on Show. This will show in white the area to be printed. Any graphics on the grey area will not print.

There are improved versions of the printer drivers on the Risc OS Extras Disc available from Acorn and Acorn dealers. They allow you to set the size of three preset paper sizes complete with margins which can be saved as the default sizes of printout that you most commonly use.

It is well worth getting hold of them as they include a Laserjet driver, which is useful if you're fortunate to lay hands on a Laserjet printer.

If your cards or stickers are the wrong size simply group them individually and resize them as you think fit.

The cards and stickers illustrated were magnified by a factor of 1.25 to bring them to a similar size to regular business cards once they had been printed out and found to be too small.

Hard copy

When you are happy with an individual card, copy as many of it as possible horizontally. Keep spaces for cutting in between and then copy as many complete rows of cards vertically as you can fit on to one A4 sheet.

Save the sheet – which will take up a lot of disc space – then print them out on to good quality paper or thin card. Then cut them out and either distribute the cards or use the stickers to mark books and other property.

You can hand colour them to make them more individual if you haven't access to a colour printer. In fact they could be designed right from the start with the intention of hand-colouring parts of the business cards or stickers.

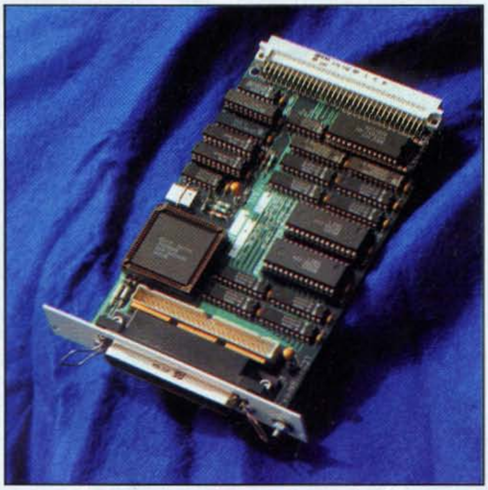
You could produce outline lettering by using a package called !FontFX and fill in the outline letters using coloured pens, though the lettering would have to be fairly bold to be able to see, let alone colour, such small lettering.

If you have access to a colour printer, dot matrix or ink jet, have a go at editing the style of the text or parts of the drawing to different colours and then printing them out.

Next month: Using DrawPlus and PD programs we'll be producing a poster for a training day.

QUALITY - SERVICE - SUPPORT - SINCE 1985

SCSI Hard Disc Drives, Tape Streamers & CD ROM...



The fastest hard disc interface for the Archimedes and A3000

Systems from as little as £219 (Archimedes) & £289 (A3000)

Free ArcTools disc utility software with every hard disc system

Dealer and Educational prices available

...call (091) 257 6355 and ask for Sales!

MORLEY
E·L·E·C·T·R·O·N·I·C·S · L·T·D

One year ago, Morley Electronics decided to design and build a new SCSI interface card. The design objective was quite simple....to build the best. We believe that by manufacturing the fastest SCSI interface, utilising a quality four layer board and also making it completely ANSI Level 2 compliant, we have achieved our aim.

Two 16 bit interfaces are available. Our standard interface is extremely fast but for those requiring even faster data transfer, our cached card offers sustained transfer speeds up to 3790 KB/s (compared with a maximum sustained transfer speed of 2121 KB/s for our standard card).

The A3000 expansion card comes in a colour coordinated steel case which fixes to the rear of the A3000. The hard disc mechanism is enclosed in a separate steel case (also colour coordinated) with switch mode power supply and fan to ensure that the unit remains cool.

The 400 series expansion card occupies a single expansion socket and can support both internally and externally mounted devices. It is fully compatible and will coexist with any existing ST506 drive.

Each expansion card will support up to seven SCSI devices including hard discs, tape streamers, solid state discs, CD ROM players etc. (providing the appropriate software to drive them is installed).

The SCSI system is designed to comply fully with the ANSI X3.131-1986 standard and to give full Acorn RISC OS compatibility.

Full technical information (including data transfer speeds) are available on request.

INTERFACES*

A3000 SCSI Interface	£169
400 SCSI Interface	£149

SCSI DISK DRIVES*

Including SCSI interface, cable & leads. A3000 drives also include drive case and switch mode power supply.

A3000 20MB	£289
A3000 50MB	£379
A3000 100MB	£499
400 Internal 20MB	£219
400 Internal 50MB	£299
400 Internal 100MB	£449
Larger Drives POA	

400 External drives are the same price as A3000 drives.

TAPE STREAMER BACKUP*

150MB (with SCSI interface)	£799
150MB (w/o SCSI interface)	£699

CD ROM*

Coming Soon.
Phone for availability.

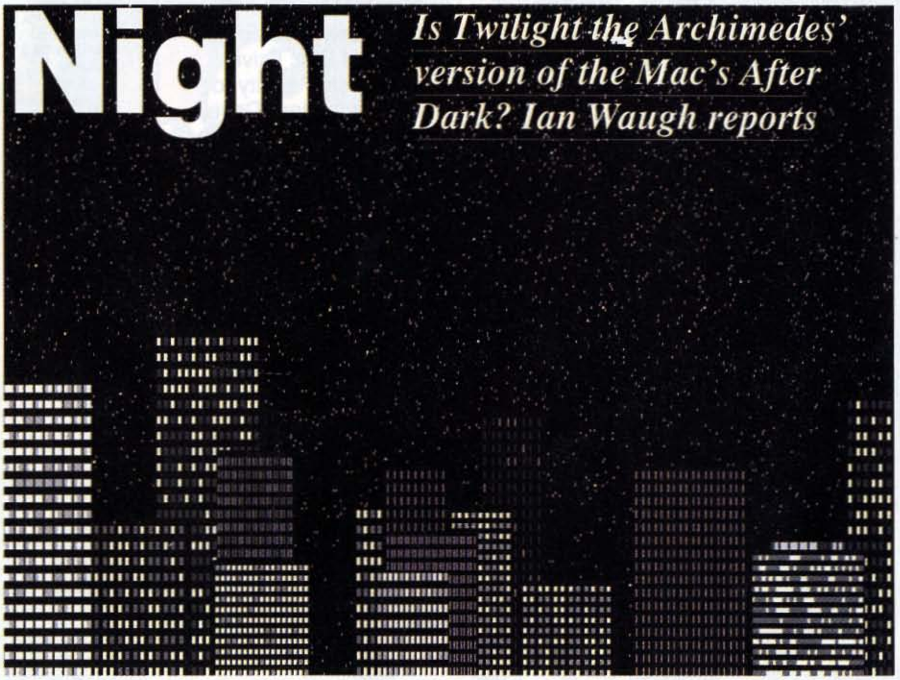
***Cached Interface Add**	**£50**

All prices exclude VAT & carriage.

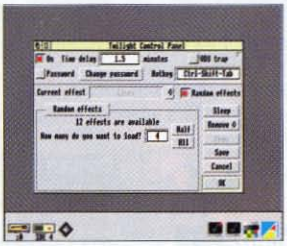
MORLEY HOUSE, WEST CHIRTON, NORTH SHIELDS, TYNE & WEAR, NE29 7TY. TEL (091) 257 6355. FAX (091) 257 6373

Starry, Starry Night

Is Twilight the Archimedes' version of the Mac's After Dark? Ian Waugh reports

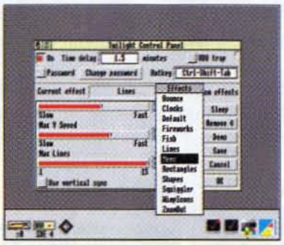


Product: Twilight
Price: £29.95
Supplier: The Really Good Software Company, P.O. Box 60, Ashton-under-Lyme, OL5 9LD.
Requirements: Risc OS



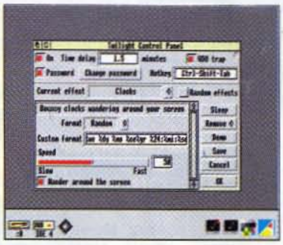
Twilight Control Panel
☑ On Time delay 1.5 minutes ☐ VDU trap
☐ Password Hotkey Ctrl-Shift-Tab
Current effect ☑ Random effects
Random effects
12 effects are available
How many do you want to load? 4

Choosing a random selection



Twilight Control Panel
☑ On Time delay 1.5 minutes ☐ VDU trap
☐ Password Hotkey Ctrl-Shift-Tab
Current effect Lines
Slow Fast
Max Y Speed
Slow Fast
Max Lines
1 15
☐ Use vertical sync

Choosing an individual effect



Twilight Control Panel
☑ On Time delay 1.5 minutes ☑ VDU trap
☑ Password Hotkey Ctrl-Shift-Tab
Current effect Clocks ☐ Random effects
Bouncy clocks wandering around your screen
Format Random
Custom format
Speed 50
Slow Fast
☑ Wander around the screen

A choice of clocks

ANYONE who has popped into the red and grey emporium of an Apple Centre can't fail to have seen and been impressed by screensavers such as After Dark – designed to sell Mac graphics as much as save screens.

They spring into action if the computer or mouse has not been touched for a predetermined time and either blank the screen or put some kind of moving graphic display on it. The object is to prevent the same image remaining on your monitor for a long period of time during which it will 'burn' itself into the tube.

Switch off your computer and look closely at your monitor. You may notice a faint ghost image of the icon bar along the bottom of the screen. This image will eventually etch itself into your monitor and is clearly something to be avoided – although, depending on how often you use your computer, it could take years.

Twilight monitors keyboard and mouse movement and after a period of inactivity, which you can control, it'll blank the screen or show a number of changing displays. The screen will be restored when you touch the mouse or keyboard.

It can optionally also monitor VDU activity so a program which prints a message to the screen after performing a function will wake it up.

Twilight is multi-tasking and dosen't require the front end to be loaded to work. It will still work even when your Archimedes is printing, playing music or doing some background calculations.

You can send the screen to sleep by pressing a combination of hot keys or you can use the Twilight Corners program which sends the screen to sleep when you move the mouse to a corner of the screen.

In addition there's a password option. Your chosen code word has to be entered before the screen is permitted to wake up, allowing you to hide the screen from prying eyes. This will be particularly useful in an office environment but if you have a nosey family...

Apart from the default message screen, eight other effects are supplied which you can load and remove from use. They include bouncing balls, clocks, fireworks, fish, lissajous lines, rectangles, Wimp icons and a 'ripple in the pond' effect called zoom out.

They all have a range of adjustable parameters such as speed of movement around the screen, amount of movement, gravity effect, number of items and so on. Or you could select a single effect to appear each time or they can cycle randomly.

So what of the effects? The Twilight I saw was a beta test version but RGSC promise more and better graphics with the finished one.

But so far – in comparison with the Mac's After Dark – they really are rather poor: Thin lines, flickery graphics, anaemic fireworks and tiddlers instead of fish. If you really want to see what screensavers can do, check out After Dark's Aquarium – truly amazing.

With a program such as this you'll probably want it to run every time you use your computer. Rather than click on the Twilight icon each time, the manual explains how to make it auto-boot either from a floppy or from a hard disc.

You can write your own effects if you're clever – a knowledge of ARM programming and the Risc OS is essential. Although the software company has said they will be issuing extra effects from time to time which may be released as Public Domain and they expect third parties to produce more effects, too.

Twilight works and it works well. It's very easy to use and the manual explains anything which is not immediately obvious – most of it is!

Summing up

A screensaver is what every Archimedes owner needs – whether they know it or not.

But the graphics in Twilight are poor as yet and it has the same price tag as the industry leader – After Dark on the Mac. However, it will certainly help prevent screen burn in.

Brush up the boring pics and the Really Good Software Company really *will* have a good piece of software.

Watford Electronics

(A member of the Jessa group of Companies – Established 1972)

Jessa House, 250 Lower High Street, Watford WD1 2AN, England
Tel: Watford (0923) 237774 Tlx: 8956095 Fax: (0923) 233642

The sign of Quality

Shop Hours: 9am to 6pm (Mon.-Sat.) Thursday 9am to 8pm. FREE customer car park.
All prices exclusive of VAT; subject to change without notice & available on request.

Acorn

The choice of Experience

Archimedes micro

System	Basic	Mono	Colour	Multiscan
A410/1	£899	£965	£1064	£1224
A540/1	£2495	£2555	£2655	£2815
A3000	£599	£665	£764	£924
A3000L/C	£642	£708	£807	£967
A5000	£999	£1065	£1164	£1324
A5000H/D	–	–	–	£1499
A5000L/C	–	–	–	£1531

P.S. When you buy an A5000 look what you get!

- A Learning Curve Pack for only: **£35**
- A Learning Curve Pack + Acorn Ink Jet Printer for only: **£267**

Unbeatable Sale Offers on Archimedes Micro

When you purchase an Archimedes Micro from Watford, look what you get FREE with it

Micro	Free Offer
A410/1	ARM 3 Fitted
A540/1	Multiscan monitor with VIDC enhancer and LC20 Printer
A3000	2Mb RAM; Monitor plinth and Acorn's A3000 Shoulder Bag (carrying case)

Plus of course our no quibble 12 months FREE On-Site Maintenance on all Archimedes Micros.

Archi Accessories

• 3.5" 800K 2nd Floppy Drive (305/310)	£118
• 5.25" 800K external Floppy Drive	£85
• I/O Podule (Analogue/User/1MHz bus)	£79
• I/O Podule (Analogue/User)	£49
• MEMC 1A Upgrade	£42
• MIDI add-on to I/O Podule	£27
• MIDI Expansion Card	£65
• Sound Sampler Mono (Armadillo)	£129
• Sound Sampler Stereo /Midi (Armadillo)	£186
• Chromalock Podule (Wild Vision)	£275
• Econet Network Board	£42
• Archimedes IEEE Interface Adaptor	£269
• Dual RS232 Podule	£195
• 16 bit parallel I/O Card	£195
• Archi replacement mouse – New design	£32
• PC Emulator v1.7	£85
• Software Developers Toolbox	£149
• Floating Point Unit	£455
• SCSI Adaptor Expansion Card	£156
• Keyboard Extension Lead	£6
• 2 Podule Backplane	£25
• 4 Podule Backplane	£38
• Fan for above backplanes	£8
• Risc Os Extras Software Disc	£5
• Ethernet Card	£220
• SCSI Card 8 bit	£129

A3000 Accessories

• 3.5" External Drive	£95
• Monitor Stand	£15
• Technical Manual	£39
• Serial Upgrade	£17
• A3000 Dust Cover	£5
• A3000 plus Monitor Dust Cover	£9
• A3000 User Port/Midi Upgrade Card	£44
• A3000 User/Analogue/IIC I/O Card	£42
• A3000 External Podule Case	£13

Christmas Bonanza Archimedes A3000 Desk Top Publishing (DTP) Offer

A3000 BBC Archimedes Micro with 3.5" Floppy Disc Drive and a mouse, upgraded to 2Mb RAM, COLOUR Monitor + Lead, 20Mb fast IDE Hard Disc Drive, 'Compression' Utility to increase the Hard Drive capacity to Typically 40Mb, The highly acclaimed Computer Concept's Impression Junior DTP software package.

RRP: £1299

Xmas Offer Price: £849

Special Education Discount available. Please telephone

0923 250235

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

• **R302**-A3000 – to 2MB RAM Upgrade	£39
• **R303**-A3000 – to 2MB RAM Upgrade (expandable to 4MB)	£65
• **R304**-A3000 – to 4MB RAM Upgrade	£139
• **R311**-A305 – to 1MB RAM Upgrade	£30
• **R312**-A305/310 – to 2MB RAM Upgrade	£149
• **R314**-A305/310 – to 4MB RAM Upgrade	£265
• **R412**-A410/1 – to 2MB RAM Upgrade	£35
• **R413**-A420/1 – to 4MB RAM Upgrade	£64
• **R414**-A410/1 – to 4MB RAM Upgrade	£98
• **R810**-A410/1 – to 8MB RAM Upgrade	£599
• **R820**-A420/1 – to 8MB RAM Upgrade	£569
• **R840**-A440/1 – to 8MB RAM Upgrade	£499
• **R814**-R140 – to 8MB RAM Upgrade	£499

0% Finance & Special Teachers/Academics' prices Now available on A3000L/C and A5000 L/C Micro Systems

Convert your Archi 410 to a 420 or 440 with Watford's unique Upgrade Kits

UP10 – to 2MB RAM + 20MB Hard Disc	£165
UP15 – to 2MB RAM + 40MB Hard Disc	£252
UP20 – to 4MB RAM + 20MB Hard Disc	£232
UP30 – to 4MB RAM + 40MB Hard Disc	£318
UP40 – to 4MB RAM + 53MB Hard Disc	£438

Graphics, Art, Design & Games

GRAPHICS

ARCtist	£19
ARCticulate	£19
Atelier	£65
Artisan II	£45
Artisan Gallery	£16
Autosketch II	£65
Craftshop 1 & 2	£28
Euclid 2	£50
Graph Box	£59
Graphbox Professional	£118
HotLink Presenter	£40
Kermit	£46
Mogul	£17
Poster	£79
Pro Artisan	£70
Prime Art	£69
Render Bender	£58
Snippet	£21
Tween	£21

GAMES

Air Supremacy	£20
ARCticulate	£19
Apocalypse	£15
Arcade 3 Compil.	£12
Arcade Soccer	£15
Arc Trivia	£18
Avon	£16
Blowpipe	£16
Boogie Buggy	£19
Break 147	£19
Bug Hunter	£14
Caverns	£14
Chess 3D	£14
Chocks Away	£14
Chocks Away Extra	£14
Conqueror	£18
Cops	£14
Corruption	£18
Crisis	£21
Elite	£33
Enter the Realms	£19
Enthar Seven	£21
E-Type	£14
E-Type Designer	£13
E-Type Extra 100 miles	£13
Family Favourites	£15
Fireball 2	£19
Gumshoes	£19
Holed Out Designer	£13
Holed Out Golf	£13
Hostages	£15
Ibix the Viking	£14
Inter Dictor 2	£26
Iron Lord	£15
Jiglet	£25
Jigsaw	£27
Lemmings	£22
Masterbreak	£16
Magpie	£39
Man at Arms	£16
MahJong Patience	£15
Manchester United Europe	£19
Nevryon	£14
Olympics	£15
Pipe Mania	£17
Pirate	£16
Power Band	£18
Puncman 1 & 2	£16
Puncman 3 & 4	£16
Pysanki	£15
Quazer	£10
Real McCoy	£22
Real McCoy 2	£23
Redshift	£14
Return to Doom	£16
Revelation	£54
Repton 3	£15
Rotor	£19
Saloon Cars	£19
Splice	£25
Sporting Triangles	£24
Star Trader	£14
Superior Golf	£15
Super Pool	£19
Talisman	£12
The Pawn	£19
Thundermonk	£11
Timewatch	£24
Trivial Pursuit	£22
Twin World	£15
U.I.M.	£23
White Magic	£15
White Magic 2	£15
Wimp Game	£13
Worldscape	£16

Miscellaneous

Ancestry	£59
Arccomm 2	£38
Arcterm 7	£64
Armadeus Sound	£60
BBC DFS Reader	£6
Blowpipe	£17
Broadcaster Loader	£65
Compression (CC)	£44
Equasor	£47
FlexiFile	£98
Genesis	£65
Genesis 2	£113
Hearsay Comms Pack	£50
Investigator 2	£22
JX Archi Colour Printer Driver for Citizen & Star	£15
Numerator	£66
Presenter 2	£35
Presenter Story	£145
Rainforest	£17
Revelation	£58
Rhapsody in Blue 2	£45
Speech!	£15
The Victorian	£17
Time Tabler	£549
Toolkit (Clares)	£35
Touchtype	£40
Tracer	£46
Tracker	£39
Vox Box	£47
WorldScape	£17

Archimedes Hard Disc

Watford's ST506 Hard disc drives for A310 & A410 series fit internally into the space provided.
P.S. A310 upgrades require a backplane and a fan.

• **3HDP** – Hard Disc Podule only	£135
• **3HD20** – 20Meg H' Disc + Podule for 310	£235
• **3HD40** – 40Meg H' Disc + Podule for 310	£345
• **3HD50** – 53Meg H' Disc + Podule for 310	£474
• **4HD20** – 20Meg Hard Disc for 410	£129
• **4HD40** – 40Meg Hard Disc for 410	£215
• **4HD50** – 53Meg Hard Disc for 410	£335
• A3000 20Meg Hard Disc + Podule	£299
• A3000 40Meg Hard Disc + Podule	£429

For Archimedes IDE Hard Disc turn to page 14

Desk Top Publisher

Acorn's Archi DTP Package	£108
Equasor	£39
Impression 2 DTP Pack	£130
Impression Junior	£72
Expression-PS	£19
Tempest DTP Package	£90

More Archimedes Products See Pages 3, 5, 6, 8, 10, 14

Archi Wordprocessors

Pendown Archi	£48	Archie Spell Master	£25
Wordwise + Disc	£24	PD Spellchecker	£40
Image Writer	£25	View	£45
Interword Disc	£24	Graphic Writer	£19
1st Word Plus – 2	£63	EasiWord	£18

Databases

AlphaBase	£36	Magpie	£40
Knowledge Organiser	£42	Multistore v2.01	£185

Spreadsheets

Intersheet Disc	£24	Schema	£89
Viewsheet	£45		

Business Graphics

GammaPlot	£39	Sigmaplot	£39
Interchart Disc	£17		

Integrated Packages

• Logistix	£79	• Pipedream 4	£149

• Desktop Office – Database, Graphs & Charts, Wordprocessor Spreadsheet, Communications	£98
• Desktop Folio – Wordprocessor, Desktop & Interactive Publishing. Ideal for school environment.	£75

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

The card is provided with an extensive manual explaining installation, all software commands, connector pin outs, hardware addresses and example programs.

Features
- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices.

£42

Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes. £15

Silicon Vision

Gerber Plot	£95	Solids Render	£120
Solid CAD	£120	Solid Tools	£279
Super Plot	£28	Data Vision	£110
Super Dump	£22	Share Holder	£135
Arc PCB Professional			£275
Realtime Solids Modeller			£136

Archimedes to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.
New RISC OS Version **Only £15**

Archimedes External Disc Drive Interface

With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

• A300/A3000	£21	• A400	£25

Special Education Prices

All education establishments qualify for special education prices on micros, etc. Please write in or telephone (0923) 37774 or 50335 for written quotation.

LANGUAGES (Archimedes)

ISO-PASCAL; FORTRAN 77			£77 each
Assembler; LISP; Prolog X			£149 each
ANSI C Rel. 3	£125	BASIC Compiler	£77
Cambridge Pascal	£60	Logotron Logo	£45
Macro Assembler	£40	Risc Basic	£120
Robo Logo	£69	Risc FORTH	£110

NEW

256 Grey-Scale Scanner

Watford proudly introduces its new innovative 256 grey-level hand scanner for the Archimedes range of micros. It offers up to 400 dpi scanning resolution, complete with software.

256 Grey-Scale Scanner is ideal for incorporating pre-drawn logos, artwork, photographs and sketches into desktop publishing documents and other graphics programs. Designed by our own R & D team, it offers the best overall scanning solution for Archimedes micro. Just compare the competition on our price and these outstanding features:

- Full 105mm 400dpi scanning operation in just 3mS per line! (Twice as fast as most scanners.)
- Selectable 256/16/4 grey levels
- Full scan preview, scale to fit windows
- Complete set of image enhancement tools
- Single width podule
- True brightness and contrast control
- Fast RISC OS printing
- Five-function edge detection software, Laplace convolution matrix image enhancement, image smoothing, etc.

Special Launch Price

£185

Minerva's Archimedes Software

EasyWord	£18	Mailshot*	£27
Home Accounts	£35	Reporter*	£27
Time Tabler	£549	School Admin*	£65
System Delta	£59		

System Delta Program Reference Manual £29
** Requires System Delta to operate*

Stand alone Business Accounts Packages
Sales; Purchase; Order Processing and Invoicing; Nominal; Stock management
£79 per module
or Complete Business Package **£325**

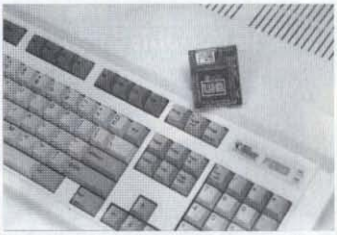
ULTIMUM – Archimedes A3000 Podule Racking System

THE ONLY LOGICAL WAY TO EXPAND YOUR A3000 COMPUTER

Price: £125

ARM 3 Turbo Card

Simply The Best



Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £199. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.

Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £35.

(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

In response to our customers planning their seasonal budget, we have agreed to extend the ARM 3 £199 launch price over the holiday period until the middle of January 1992.

RRP £249

Offer Price £199

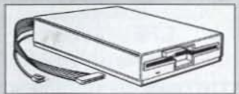
All our A3000 ARM 3 upgrades are fitted by Acorn approved Board level & surface mount technology Service Centre without invalidating the warranty.

Continued→ → → → → → → → →

BBC MASTER

MASTER 128K Micro incl. Acorn's View, Viewsheet, ADFS, BASIC Editor & TERMINAL plus FREE OFFER (see below) **£399**

FREE OFFER



A 5.25" Double Sided, 40/80 track switchable 400K Disc Drive complete with cables and a Utilities disc incl. 2 games, plus

Gemini's OFFICE MATE & OFFICE MASTER packages on Disc consisting of: Database, Spreadsheet, Beebplot graphics. Accounts packs: Cashbook, Final Accounts, Mailist, Easyledger, Invoice & Statements, Stock Control.

FREE with every BBC Master purchased from us during December

Add-Ons & Accessories

Econet Module for the Master		£45
Twin ROM Cartridge for Master		£9
Quad ROM Cartridge for Master		£14
Master Reference Manual I	(No VAT)	£14
Master Reference Manual II	(No VAT)	£14
Master Advance Ref Manual	(No VAT)	£17
64K Upgrade Kit for B+		£32
Acorn 1772 DFS Kit complete		£49
ECONET Upgrade Kit for BBC B		£42
ALL ECONET UPGRADES Available		
ARIES' IEEE Interface for BBC B & Master		£238
Morley Teletext Adaptor with ATS Rom		£99
Ecolink		£270

Z88 Portable Micro

£179

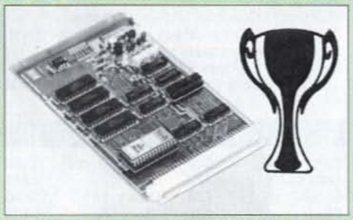
FREE

With every Z88 purchased from us, we are giving away absolutely FREE, a Z88 to BBC Interface Link, 4 rechargeable batteries and a compact Mains Battery Charger worth £38.

Z88 ACCESSORIES

• 32K RAM Pack or 32K EPROM Pack			£16
• 128K RAM Pack or 128K EPROM Pack			£32
• 512K RAM Pack			£86
• Z88 Eprom Eraser Unit			£38
• Z88 Spellmaster for Pipedream			£40
• Z88 Carrying Case			£8
• Z88 Computing Book			£9.95
• AA Nicad Rechargeable Battery			£1.50
• Battery Charger Compact & Fast			£6
• Z88 Serial Printer Cable			£8
• Z88 Parallel Printer Cable			£18
• Z88 to Archi Link			£15
• Z88 to BBC Link	£8	• Z BASE	£56
• Z88 to PC Link II	£27	• Z TAPE	£42
• Z88 to Macintosh	£32	• Z TERM	£42
• Z88 Mains Adaptor	£9	• Z88 Modem	£114

Archi Real-Time Digitiser



Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £155

A Set of Colour Filters for colour image grabbing using a video camera	**£16**
New Risc-OS Software Upgrade	**£39**

Archi Graphic Tablet

The Archi Graphic Tablet offers performance and accuracy comparable to other tablets priced at well over £400, and has the useful addition of a liftable cover, which can hold tracing material or menu templates securely. The package is supplied complete with sophisticated Archi software. (Now, fully LinCAD compatible. Recommended by Linear Graphic for use in Education).

(FREE this month, PC Mouse Drivers & Art package)

Special Price £199

(Price includes Tablet, Leads, Software & Puck)
Stylus Optional Extra **£15**

Archi Graphic Tablet Junior. Working area 9" x 6". Price includes Stylus **£125**

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk. Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs.

Protection at Only: **£2**

Acorn & Watford DFSs

• Watford sophisticated DFS ROM	£16.00
• Watford DFS Kit complete	£69.00
• We will exchange your existing ROM for Watford's ultimate DFS ROM at only	£12.00
• DFS Manual (comprehensive)	£6.95
• Acorn DNFS ROM	£17.00
• Acorn ADFS ROM only	£25.00
• Acorn 1772 DFS ROM Kit	£49.00

(The single Density DFS system is now old technology. Like Acorn, Watford too have decided to replace it with the their more up-to-date 1770 DDFS interface. We have informed most of the software houses of this decision in order that they can ensure compatibility with our highly sophisticated and fully Acorn compatible DDFS).

Watford's MkII 1772

Single/Double Density DFS

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1770 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1770 DFS, plus the added features.

Added features include:

- Acorn ADFS compatible – Use ADFS on our DDFS board.
- Tube host Code – No longer any need to have the DNFS in your machine to use Co-Processors, even the CoPro and Master 512.
- Auto 40-80 Track sensing – no need to fuss with 40/80 track switches (even works with protected disks).
- An extremely powerful 8271 emulation – ensuring compatibility with almost all software.
- New low profile – small footprint board.
- Fits with all third party ROM boards.
- Option to double the speed of file handling operations – BPUT and BGET.
- Operates in both single and double density modes.
- OSGBPB has been recoded, increasing still further the speed of file handling.

Please note that not all DDFS's are capable of providing either the full 80% storage increase or of allowing a file the full size of the disk – Ours allows both of these!

If you already have a DDFS (any manufacturer), and wish to upgrade to our MkII version, then simply return your existing ROM and DDFS board and we will supply the new DDFS for only **£39.00.**

• SPECIAL PRICE		**£44.00**
• DDFS Manual	(No VAT)	**£6.95**
• We will exchange your existing DFS Kit for our sophisticated DDFS for only		**£30.00**

Please note, as the MkII DDFS is a hardware and sofware upgrade, it is not possible for existing Watford DDFS users to simply exchange the ROM for the new version.

3M – Diskettes

3M – SCOTCH Diskettes with Lifetime warranty from Watford Electonics your 3M Appointed Distributor

• *10 x 5.25" S/S D/D 40T (744)*	*£5*
• *10 x 5.25" D/S D/D 40T (745)*	*£5*
• *10 x 5.25" S/S D/D 80 Track (746)*	*£7*
• *10 x 5.25" D/S D/D 80 Track (747)*	*£7*
• *10 x 5.25" 1.6M D/S D/D High Density for IBM XT and AT*	*£9*
• *10 x 3.5" S/S D/D 40/80 Track*	*£7*
• *10 x 3.5" D/S D/D 40/80 Track*	*£7*
• *10 x 3.5" Double Sided High Density*	*£13*

Top Quality 3.5" & 5.25" Diskettes

To complement our range of Quality Discs and Disc Drives. WE are now supplying SPECIAL OFFER packs of 10 Lifetime guaranteed discs. Each disc has a reinforced hub ring. Supplied complete with selfstick labels and a Plastic Library Disc Box.

● *10 x **M3** 3.5" D/S D/D 80 Track*	*£7*
● *10 x **M9** 3.5" D/S High Density*	*£12*
● *10 x **M4** 5.25" S/S D/D 40 Track*	*£5*
● *10 x **M5** 5.25" D/S D/D 40 Track*	*£5*
● *10 x **M7** 5.25" D/S D/D 80 Track*	*£7*
● *10 x **M8** 5.25" D/S H/D Hi-Density*	*£9*
● ***M2** 3" Double Sided*	*£2.50 each*

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Quality Disc Drives from Watford

All our Disc Drives are Double Sided and will operate in both Single and Double Density modes. All 5.25" Disc Drives are 40/80 track switchable. For ease of use, the switches are front mounted.

Various UK "manufacturers" of disc drives for the BBC Micro (more accurately, "packagers" label other manufacturers drives with their own name). We buy the high quality NEC and Mitsubishi drives in large quantities directly from the manufacturers, package them and sell them at "dealer" prices direct to the public.

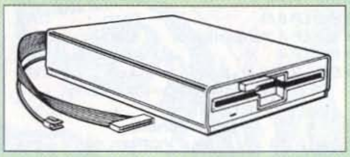
If you look around the popular BBC Micro press, you will find that the prices we quote for the top quality, new slimline disc drives are, virtually without exception, the best around. These prices, coupled with the backup of one of the country's largest distributors of BBC peripherals provides a superb deal.

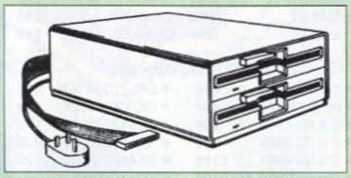
Unless you anticipate using dual drives in a fully expanded BBC system for long periods of time with little ventilation, then we suggest that our range of "CL" disc drives without the PSU (Power Supply Unit) would be quite adequate (extensive tests within our workshops have confirmed this). All drives are supplied complete with a SPECIAL UTILITIES Disc, Cables and Plugs. The Drives with power supply have a mains moulded plug for safety purposes. ***Ideal for Schools & Colleges.***

When using a BBC Micro, most people find themselves short of desk space. The Watford's BBC Micro plinths form an ideal way of recovering some of this precious space. Your BBC Disc Drive and Monitor can all occupy the same vertical footprint and still be comfortably situated. With the Watford Double Plinth, your Disc Drive is mounted vertically at one side, leaving a very valuable area directly in front of you for such useful items as spare discs, pen, paper, reference manuals, etc. Follow the trend with a Watford plinth. (Turn to the 6th page of our advert for the Plinths).

P.S. All our 5.25" Disc Drives with PSU are compatible with the Compact Micro. All you require is our special Compact Disc Drive cables designed by us.

"Test Bureau Approved for Use in Education"





Our Disc Drives conform to BS415

Type	Description	
	Disc Drive without PSU	
•CLS400S:	Single, 40/80 track 400K Double sided Drive	**£72**
•CLD800S:	Twin, 40/80 track, 800K Double sided Drives	**£142**
	Disc Drive with PSU	
•CS400S:	Single, 40/80 track, 400K Double sided Drive	**£82**
•CD800S:	Twin, 40/80 track, 800K Double sided Drives	**£155**

Special Cable to connect both 3.5" and 5.25" Disc Drives simultaneously to the BBC Compact £13

Disc Drive/DDFS Offer

- The popular CLS400S 40/80 track switchable disc drive.
- Watford's popular Mk II DDFS Interface (allows up to 720K storage). Will run both in single & double density modes.
- A comprehensive DFS Operating manual

Bargain at Only **£116** (Offer valid until stocks last)

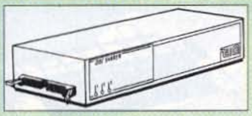
3.5" DISC DRIVE

These top quality 3.5" Double sided, 80 track, are attractively finished in BBC beige. They are supplied complete with all cables and a Utilities Disc.

Type	Description	
	Disc Drive without PSU	
•CLS35:	Single Disc Drive, 400K	**£62**
•CLD400S:	Twin Disc Drives, 800K	**£109**
	Disc Drive with PSU	
•CS35:	Single Disc Drive, 400K	**£83**
•CD35:	Twin Disc Drives, 800K	**£126**

(P.S. CS35 is supplied in a twin case with a blanking plate to enable easy expansion to a dual drive at a later stage)

Disc Drive Sharer

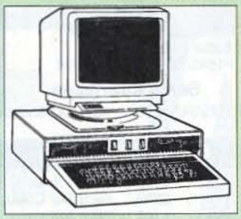


(Ideal for educational establishments)

A low cost alternative to the Econet system. Watford's Intelligent Disc Drive Sharer allows you to connect 3 BBC Micros (model B, B+ and Master series) to a single or double disc drive. Running under any DFS or DDFS, this intelligent unit will automatically queue the computers. Each computer has a status light dedicated to it. If it is green you will get immediate access to the disk, and red means that you are next in line. The unit plugs directly into the disc drive socket on each computer and is powered by the mains. (N.B. Not for use with ADFS.)

Price includes 3 Cables **£55**

Disc Drives in Monitor Stand



•CDPM 800S – Twin 5.25", 800K Double sided 40-80 track switchable disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator, and the two 40/80 track switches are mounted on the front panel for ease of use.

£165

•DP35 800 – Same as above except, one disc drive is a 5.25" and the other is 3.5".

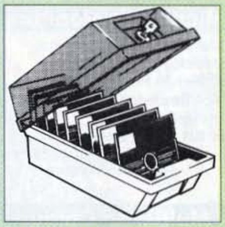
£154

Floppy Head Cleaner Kit

The heads in floppy drives are precision made and very sensitive to dirt. The use of Cleaner Kit is a sensible precaution against losing valuable data. It is recommended to clean the drive head once a week. it is very simple to use. Available in 3.5" & 5.25", please specify.

Price £4

Antistatic Lockable Disc Storage Units



Gives double protection – Strong plastic case that affords real protection to your discs.

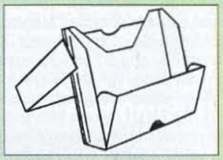
Antistatic helps avoid data corruption whilst in storage. The smoked top locks down.

Dividers and adhesive title strips are supplied for efficient filing of discs.

• **M35**	– holds up to 50 5.25" discs	**£4.95**
• **M85**	– holds up to 95 5.25" discs	**£6.95**
• **M25***	– holds up to 25 3.5" discs	**£4.95**
• **M50**	– holds 50 3.5" discs	**£6.50**
• **M10**	– holds 8 of No. 10 Data Cartridges	**£15**

* Not lockable

Plastic Library Cases



Holds up to 10 x 3.5" Discs.	**£1.50**
Holds up to 10 x 5.25" Discs.	**£2.00**

Dust Covers (For our Disc Drives)

Single CLS (without PSU)	**£3.20**
Single CS (with PSU)	**£3.25**
Twin CLD (without PSU)	**£3.85**
Twin CD (with PSU)	**£3.90**

Disc Albums

Attractively finished in black leather-look vinyl. Stores up to 20 discs. Each disc can be seen through the clear view pocket.

£4

Special Bulk Offer on Discs

(Supplied packed in Anti-Static Lockable Storage Units)
(Lifetime warranty on Discs)

PRICES SLASHED

BULK PACK DISCS in lots of 100

Type	S/S 40T	D/S 40T	D/S 80T
• Without Sleeves 5.25"	**£30**	**£35**	**£40**
• With Sleeves 5.25"	**£33**	**£38**	**£43**
• 3.5" D/S D/D	**£29 for 50**	**£52 for 100**	

Continued→ → → → → → → → →

Microvitec Monitors

• **1431** – Standard Resolution Monitor	£169
• **1451** – Medium Resolution Monitor	£209
• **Cub3000** Medium Res for A3000	£189
• **1441** – High Resolution Monitor	£359
• Dust Cover for Microvitecs	£5.50
• **Touchtec 501 Touch Screen**	£239

Now 3 years Parts & Labour warranty on all Microvitec Monitors

Multiscan Colour

• Eizo 9060S	**£389**	• NEC 6FG	**£1525**
• Eizo 9070S	**£579**	• Taxan 770LR	**£362**
• NEC 3FG	**£370**	• Taxan 775	**£366**
• NEC 4FG	**£465**	• Taxan 795	**£402**
• NEC 5FG	**£850**	• Taxan 875	**£669**
• VIDC Enhancer Board			**£25**

(P.S. Taxan 795 monitor is supplied with a FREE VIDC enhancer board)

NEW

Aries AlphaScan Monitor

Pound for Pound, the AlphaScan VGA Multiscan monitor provides the maximum performance and greatest flexlbility of any 14" colour monitor for the Archimedes micro.

Its multiscan circuitry provides automatic adjustment for frequencies between 30 and 60KHz horizontal, and 50 and 90Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The Multivideo VIDC Adaptor supplied (free) with the monitor allows high resolution operation in all screen modes.

£325

Philips Monitors

• **BM7502** 12" Hi-res Green Monitor	£67
• **BM7522** 12" Hi-res Amber Monitor	£67
• **CM8833** 14" Med. Res Colour Monitor	£165
• TV Tuner for CM8833 Monitors	£62
Dust Cover for Philips Monitors	£6

STAR BUY

- **PHILIPS 14"** Medium Res, dark glass, attractively finished Colour Monitor. A push-button switch toggles between Hi-Res monochrome green text mode and full colour display. (Please state the type of Connecting Lead you require).

ONLY £163

Refurbished Monitors

Philips 14" Refurbished Colour Monitors, same specification as the 'Star Buy' Monitors above **£119**

(Offer valid while stocks last)

Spare Monitor Leads

BNC Lead for Zenith or Philips	£3
Skart Monitor Lead	£5
RGB lead for TAXAN Monitors	£3
Archimedes Colour Monitor Lead	£7.50

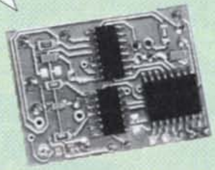
Anti Glare VDU Screen

These extremely effective, easy to install, 12" & 14" VDU screens eliminate harmful glare, improves contrast on colour monitors. Increases productivity in offices. A must for wordprocessor users.

£12

NEW

Watford VIDC Enhancer



This unique VIDC add-on board for the Archimedes, caters for all types of Multiscan and VGA monitor and mode requirements. There are 2 versions to suit all requirements. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A WIMP application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VIDC Card: This provides support for both VGA and Multisync monitors. A unique electronic design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control

£45

MultiVideo VIDC Card: As above but for MultiScan monitors only.

£25

Panasonic Printers

• **KX-P1123**	£133	• **KX-P1624**	£278
• **KX-P1124i**	£177	• **KX-P1654**	*£385
• **KX-P1170**	£105	• **KX-P1695**	£278
• **KX-P1180**	£96	• **KX-P2624**	*£355

*** Price includes 12 months On-site warranty**

Panasonic Accessories

Cut Sheet Feeders

P36 – 1124/24i	**£79**	**P37** – 1123/70/80	**£69**
P38 – P1624/95; P2624			**£129**

Buffers

P12 4K Buffer Board for KX-P1081	**£55**
32K Buffer P1123/24/70/80 P1540/92/95; P1624/54/95	**£16**

Serial Interfaces

P19 for P1123/24/24i/70/80/1624/54/95/2624	**£49**

Citizen Printers

120D Plus	**£100**	124D Printer	**£145**
PN-48	**£209**	Swift 24E Colour	**£249**
Swift 9	**£145**	Swift 24X	**£299**
• Prodot Cut Sheet Feeder			**£120**
• Swift 24 Colour Option			**£29**
• Swift 24 Ribbons	Black **£4**		Colour **£13**
• Swift 24X Cut Sheet Feeder			**£125**

Integrex Colour Jet

• Colour Jet 132 Printer	**£475**
• Paper Roll	**£6.50**
• BBC Screen Dump Software	**£10**
• Colour Cartridge	**£21**
• Black Cartridge	**£12.40**
• 100 A4 OHP transparencies	**£55**
• 8K Serial Interface Optional	**£123**

Star Printers

• LC15	**£173**	• LC200 Colour	**£146**
• LC20	**£103**	• SJ48 Inkjet	**£179**
• LC24-10	**£137**	• XB24-200 Colour	**£299**
• LC24-15	**£275**	• XB24-250 Colour	**£359**
• LC24-200	**£168**	• XB24 Colour kit	**£29**
• LC24-200 Colour	**£207**	• ZA200 Colour	**£236**

Star Accessories

Cut Sheet Feeder

LC10/200/24-10	**£65**	LC15/LC24-15	**£125**
XB24-10	**£80**	XB24-15	**£139**

Serial Interfaces

SPC-10	LC10; LC10-II; LC10-Col; LC15; LC24-10; LC24-15; LC-200; LC24-200	**£49**
8K Ser	LC-200; LC24-200; FR10; FR15; XB24-10; XB24-15	**£64**

Paper Roll Holders

LC-200; LC24-200; LC24-200 colour	**£29**

Buffers

32K Ram Card for LC/XB24-10; 15; LC200	**£55**

Ribbons

LC10; LC10-II; LC15	Black **£4**;	Colour **£6**
LC-200; LC24-200	Black **£5**;	Colour **£12**
XB24-10; XB24-15	Black **£5**;	Colour **£12**

Laser Printers

All Laser Printers include 12 months On-site maintenance

• Canon LBP-4+	4ppm	**£575**
• Canon LBP-8 III	8ppm	**£975**
• Canon LBP-8 IIIR	8ppm	**£1445**
• Canon LBP-8 IIIT	8ppm	**£1345**
• Epson EPL4100	6ppm	**£575**
• Epson EPL7500	6ppm	**£1165**
• HP Laserjet III	8ppm	**£1015**
• HP Laserjet IIID	8ppm	**£1720**
• HP Laserjet IIIP	4ppm	**£705**
• HP Laserjet IIISi	4ppm	**£2475**
• HP Laserjet IIIsi	16ppm	**£2475**
• Panasonic KX-P4420	8ppm*	**£629**
• Panasonic KX-P4450i*	11ppm*	**£945**
• Panasonic KX-4455 Postscript	11ppm*	**£1455**
• Star LP-8 III 2	8ppm	**£1249**
• Star LP-8 III	8ppm	**£915**
• Star LP-8 Star(post)script	8ppm	**£1149**
• Star LP-4	4ppm	**£565**
• Star LP-4PS Postscript	4ppm	**£779**

* Now with 2 years On-site warranty

Laser Toners

Canon 2, 3 & 4	**£46**	KX-P4420/50	**£19**
Epson GQ	**£13**	Laserjet HP IIP & IIIP	**£42**
EPL7100	**£82**	Laserjet II/D, III/D	**£48**
Star LP-8	**£56**	Qume Crystal (3)	**£42**

Laser RAM Upgrades

• IIP & III 1MB	**£56**	• EPL7100 256K	**£39**
• IIP & III 2MB	**£88**	• GQ5000 512K	**£42**
• II & IID 1MB	**£64**	• KX4420/50 1M	**£75**
• II & IID 2MB	**£99**	• KX4420/50 2M	**£115**
• II & IID 4MB	**£146**	• KX4420/50 4M	**£195**
• Canon LBP4 1M	**£105**	• Star LP8 1M	**£139**
• Canon LBP8 2M	**£125**	• Star LP8 2M	**£275**

Laser Drum & Developer

• Epson Drum	GQ5000	**£93**	EPL7100	**£129**
• Panasonic 4420 Drum		**£60**	Developer	**£59**
• Panasonic 4450 Drum		**£93**	Developer	**£80**
• Qume Drum		**£76**	Developer	**£56**

Jetpage Postscript Cartridge

• HP IIP/III	**£239**	IID & IIID	**£240**

Various Add-Ons

Laserjet Appletalk Interface	**£139**
HP Adobe Postscript	**£399**
Jetpage Postscript for Laserjet 2	**£235**
Jetpage Postscript for HP 2P/3	**£229**
Pacific Page Postscript	**£259**
HP Premier Font Collection	**£28**
Jetfont Superset for II & IID	**£129**
JF Superset International for IIP & III	**£145**

Hewlett-Packard Printers

• # Desk Jet 500	**£275**	• Paintjet XL	**£1089**
• Desk Jet 500 Col.	**£499**	• Quiet Jet Plus	**£384**
• Desk Jet Cartridge	**£14**	• HP Think Jet	**£265**
• Paint Jet Colour	**£435**		

Now 3 years extended Parts & Labour warranty

• Paintjet Cartridges Black **£19;** Colour	**£25**
• Desk Jet 500 256K RAM cartridge	**£129**
• HP Epson FX Emulation Cartridge for Desk Jet	**£59**
• Desk Jet Unlimited (Book No VAT)	**£19.75**

Canon Bubblejet Printers

	Printer	CSF	D'ble Bin	Ink Cart
BJ10EX	£192	£43		£16
BJ300	£340	£88	£65	£12
BJ330	£385	£110	£79	£12

• Spare Battery pack for BJ10E **£33**

NEC Pinwriter Printers

• P20	**£176**	• P70	**£403**
• P30	**£214**	• P90	**£599**
• P60	**£324**		

Cut Sheet Feeders

P20 **£59;** P30 **£75;** P60 **£85;** P70 **£129**

Epson Printers

DFX5000	**£1069**	LQ1060 Colour	**£599**
DFX8000	**£1949**	LQ1070	**£322**
FX850	**£268**	LQ1170	**£438**
FX1050	**£342**	LQ2550+	**£679**
LQ200	**£155**	LX400	**£104**
LQ450	**£172**	LX850	**£144**
LQ570	**£210**	LX1050	**£219**
LQ860 Colour	**£449**	SQ850	**£432**
LQ870	**£369**	SQ2550	**£635**

Cut Sheet Feeders for

LX400/800/850/LQ400/500/550	**£69**
EX800/FX800/850/LQ800/850	**£130**
FX/LQ 1000/1050/SQ850	**£159**
LQ 2550 **£390** SQ2550	**£390**

Tractor Feed for

LQ800 **£44;** LQ850/FX850 **£69;** LQ1050/FX1050 **£85;** LQ2500 **£90;** LQ2550 **£90.**

Accessories

• EX800/1000 Colour Option	**£45**
• EX800/1000 Colour Ribbon	**£14**
• LQ2500 Colour Option	**£65**
• Multifont Card for LQ550/850/1050	**£95**

Epson Printer Interfaces

All these interfaces fit inside the printer

RS232 **£28** RS232 + 2K Buffer **£52**

Printer Leads

BBC Centronics 4' long	**£5**
BBC Centronics 6' extra long	**£7**
Compact's Special Centronics Lead	**£7**
Nimbus Centronics Lead	**£6**
IBM/Archimedes Parallel Lead 6'	**£4**
IBM/Archimedes Parallel Lead 5 metres	**£10**
IBM/Archimedes Parallel Lead 10 metres	**£15**
Double Ended 36 way Centronics Lead 4'	**£7**
Double Ended 36 way Centronics Lead 6'	**£9**
MSX Centronics Parallel Lead 4'	**£12**
RS232 Leads (Various)	**P.O.A.**
IBM Keyboard extension lead coiled	**£5**

Concept Keyboards

Standard A3 Keyboard with BBC Software	**£143**
Standard A4 Keyboard with BBC Software	**£117**
Archi A3 Keyboard	**£144**
Archi A4 Keyboard	**£118**

Plotters

• HP7440A	**£415**	• HP7475A	**£592**

Roland Plotters

• DXY1100	**£499**	• DXY1200	**£629**
• DXY1300	**£830**	• DXY2500	**£2349**
• DPX3500	**£3289**	• Sketchmate	**£315**
• Roland plotter Pens, Fibre tip			**£7.50**

Listing Paper (Perforated)

• 1,000 Sheets 9.5" x 11" Fanfold Paper	**£7**
• 2,000 Sheets 9.5" x 11" Fanfold Paper	**£11**
• 1,000 Sheets 9.5" x 11" NCR 2 Part Fanfold	**£21**
• 1,000 Sheets 15" x 11" Fanfold Paper	**£9**
• 2,000 Sheets 15" x 11" Fanfold Paper	**£16**
• 1,000 Sheets true A4 Fanfold Paper 70gms	**£11**
• 2,000 Sheets true A4 Fanfold Paper 70gms	**£21**
• Teleprinter Roll (Econo paper)	**£4**

(All our Fanfold paper is Micro perforated leaving a smooth clean edge when the tractor feed strips are detached).

Carriage 1K Sheets £2.50, 2K Sheets £3.00

Printer Labels

(On continuous fanfold backing sheet)

1,000 90 x 36mm (Single Row)	**£6.00**
1,000 90 x 36mm (Twin Row)	**£6.25**
1,000 90 x 49mm (Twin Row)	**£7.50**
1,000 102 x 36mm (Twin Row)	**£6.75**

Laser Printer Labels on A4 Sheets

3750 70 x 29mm (3 Rows)	**£13.50**
3000 70 x 37mm (3 Rows)	**£13.25**
2625 70 x 42mm (3 Rows)	**£13.00**

Printer Ribbons & Various Dust Covers

Type	Ribbons	Dust Covers
BBC Micro	–	£3.50
BBC Master	–	£4.00
Archimedes Micro pair	–	£9.00
Citizen 120D	£2.75	£4.50
DMP2000	£2.75	£4.75
DMP4000	£3.75	£4.85
EX800/1000	£3.50	£5.00
RX/FX80/85/800/MX80	£2.95	–
FX/MX/RX100/1000	£3.95	–
Kaga/Taxan KP810/815	£3.25	£5.00
LQ400/500/550/800/850	£3.25	£6.00
LQ1050/LQ2500	£4.00	–
LX80/86/800/850	£2.75	£4.50
LX400	£3.50	£5.00
M1009/GLP	£2.95	£3.75
NEC P2200	£4.50	£5.00
Panasonic KX1080/81	£3.25	£4.75
Panasonic KX-P1124	£7.00	£5.00
Star LC24-10	£2.95	£6.00
Olivetti Ink Jet Cartridges (set of 4)	£6	

Original Panasonic Ribbons

Guaranteed to last 3 million characters

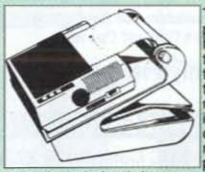
P110 for KX-P1081, 1592 & 1595 **£6**

P115 for KX-P1180 **£7** **P145** for KX-P1124 **£7**

P140 for KX-P1540 **£8** **P155** for KX-P1624 **£8**

Colour Ribbons for KX-P1081, 1592 & 1595
Brown, Blue or Red **£9 each**

Professional Printer Stand



The professional printer stand takes hardly more space than your printer. Due to the positioning of the paper feed and re-fold compartments ie. one above the other, the desk space required for your printer functions is effectively halved. Its ergonomic design ensures smooth paper flow and automatic refolding.

80 Column version £24 (carr. £3)
132 Column version £29(carr. £4)

Universal Printer Sharers/Changer

Connect up to 5 Micros to 1 printer or 5 printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Type

Connects	Serial	Parallel
• 2 to 1	£10	£11
• 3 to 1	£13	£14
• 5 to 1	£16	£17

Professional Type

Connects	Serial	Parallel
• 2 to 1	£17	£18
• 3 to 1	£22	£25
• 5 to 1	£34	£38

2 Way Compact Printer Switch

A handy 2 way printer switch. Enables one micro to be connected to 2 printers or vice versa.

Parallel **£18;** Serial **£17**

(Cables extra at £6 each)

Auto Printer Sharer Switch

Connects	Serial	Parallel
2 to 1	£40	£45
4 to 1	£62	£49
8 to 1	–	£89

256k Multi Spooler

These Auto Parallel Printer Sharers have built-in 256K of Printer Buffers. They can be used as Auto Sharers, Printer Buffers or both.

• 2 In/2 out	**£135**	• 4 In/2 out	£169
• 8 In/1 out	**£199**		

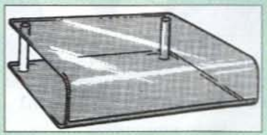
Compact Converter Units

Serial to Parallel **£36** Parallel to Serial **£37**

Laser Direct

• Laser Direct Qume 6ppm complete	£825
• Special High Res Card 600 DPI for Canon LPB 4 & LPB 8 Laser Printers	£325
• LPB 4 Printer plus High Res Card	£899
• LPB 8III Printer plus High Res Card	**£1299**

Perspex Printer Stand



Give your Computer System a touch of Class with our elegant, smoke finished Perspex Printer stand.

80 Column version	**£16** (carr £3)
136 Column version	**£20** (carr £4)

Continued→ → → → → → → → →

QUEST MOUSE Mk III

• Quest Mouse III & Quest Paint	£59
• Quest Mouse III, Quest Paint, AMX Stop Press & Pagefont	£89
• Quest Mouse III only	£30
• Quest Paint Software only	£34
• Quest Font Disc (22 Text Fonts)	£15
• Quest Mouse Mat (Red or Blue or Green please specify)	£3
• Quest Colour Dump Disc – This new software allows you to print direct from Quest Paint to your Integrex Colour Printer	£18

(P.S. Quest Paint is not compatible with BBC Compact)

Quest Paint is the winner of the BBC Acorn User 1990 Award for the Best Art/Graphics software

ConQuest

Quest combined with ConQuest and Acornsoft GXR ROM make up THE MOST POWERFUL drawing packages available for the BBC range. Quest Paint is able to take advantage of almost any additions to your machine, such as Shadow or Sideways RAM. ConQuest takes this principal even further, by utilising the otherwise normally incompatible Sideways RAM facility by holding pictures in them.

ConQuest ROM Package	£30

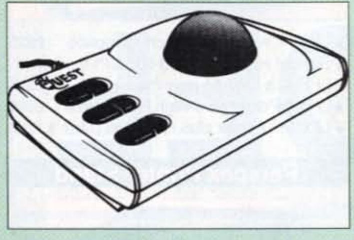
(Price includes software in ROM and a comprehensive Manual).
(Not Compatible with BBC Compact)

ARCHI Mk II MOUSE

An extremely reliable replacement mouse for Archimedes Micro	£32

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



QT-10 BBC/Master Version	**£27**
QT-20 Archimedes Version	**£30**

RB2 Marconi TRACKER BALL

RB2 (AMX/Quest compatible)	£45
RB2 including Quest Paint	£75
RB2-A for Archimedes	£46

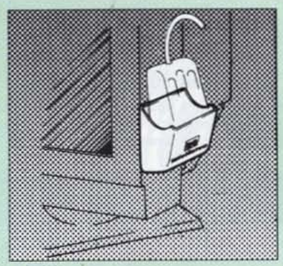
THE NEW Mk III AMX MOUSE

• AMX Mouse plus Super Art	**£54**

(Please specify for BBC, Master or Compact)

• AMX MOUSE ONLY	£29
• AMX SUPERART Package	£29
• AMX STOP PRESS – A Desktop publishing software. Works with Keyboard, Joystick or a mouse	£25
• PAGE-FONTS – Over 20 Fonts for use with AMX Pagemaker	£13
• AMX DESIGN (ROM)	£34
• AMX XAM Educational	£15
• AMX EXTRA EXTRA	£16
• AMX MAX A gem of desktop (ROM)	£20
• MOUSE MAT	£3

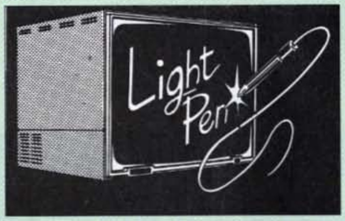
WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive or desk.

It protects it from damage when not in use, yet within easy reach when you need it again. At £4 it does not cost a rodent's ransom.

Price £3



Our Mark II Light Pen is the very latest in light pen technology. It is totally insensitive to local lighting conditions and works with many different monitors. The pen only responds to the High Frequency light produced by your monitor/TV. An LED indicates when valid video data is being produced. A conveniently located switch is also fitted. (Price includes FREE software Disc and Operating Manual)

Only £19

Fleet Street Editor

Software pack for BBC Compact	£22
Fonts N Graphics Disc Utility	£13
XTRA Admin	£12
Walt Disney	£12

BEEB VIDEO DIGITISER

"Test Bureau Approved for Use in Education"

Using any source of composite video (colour or monochrome) and the Watford Beeb Video Digitiser, you can convert an image from your camera into a graphics screen on the BBC Micro. This uses the full graphics capacity of the BBC micro in modes 0, 1 or 2. The video source may be a camera, video recorder or television, and is connected via the video output socket. The software supplied includes a sophisticated, fast screen dump routine.

Images produced can be compressed, stored to disc, printed on an Epson compatible printer, directly used to generate graphics, analysed for scientific and educational use or converted to other formats e.g. Slow Scan TV or receiving a picture from a remote camera using a modem. The output from the digitiser exactly matches the graphics capability in each mode, with up to 8 levels of grey in mode 2. The unit connects into the User Port and automatically scans a complete picture in 1.6 seconds.

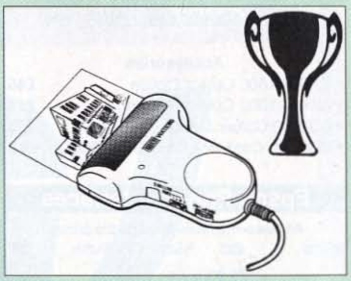
£109 (Carr. £5)

(BBC B+ and Master compatible, except Master with Econet)

(Price includes) Digitiser Unit, Software in ROM & a Comprehensive Manual)

The Beeb HandScan

Hand-held Scanner for the BBC Micro



Watford Electronics are pleased to announce the launch of the first hand held scanner for the BBC Micro. HandScan is a compact unit which will allow photographs, diagrams, or any other documents to be digitised quickly and easily, to then be used in a desk top publishing package, art program, or even in your own Basic programs! These useful devices have been available for faster and more expensive micros for some time, but only now is Watford Electronics able to offer the BBC Micro computer.

The HandScan plugs directly into the 1MHz bus on the BBC while a comprehensive set of utilities provided by the sophisticated ROM firmware. The scanner has a resolution of either 100 DPI or 200 DPI when accuracy is essential. Pictures as wide as 4" may be scanned in mode 0 and various types of dithering may be selected to simulate the grey levels of a scanned picture.

All necessary software has been included in the firmware to allow the scanner to read images directly into our Wapping Editor with little more than the click of the mouse. The digitised picture may then be incorporated into your magazine, newsletter, report or any other document.

Beeb HandScan & Firmware	£135

WAPPING
EDITOR
"MIGHTIER THAN THE QUILL"

Winner of the BBC Acorn User 1990 Award for the Best DTP/Word Processor

The Wapping Editor

The Wapping Editor from Watford Electronics represents a breakthrough in Desktop Publishing for the Beeb. The package includes a 64K ROM containing ALL the software needed to get into print fast; a very sophisticated graphics module, professional quality typesetting software, a word processor, a comprehensive font editor for designing your own typefaces, and a variety of printer dumps. This mouse-driven system is designed for the BBC B, the B+ and Master computers and will take full advantage of any Sideways and Shadow RAM that may be fitted. It will run under DFS, ADFS and Network filing systems and requires as a minimum just a single 40 track drive.

Included with the system is a utility disc containing several high quality fonts, various utilities and a ROM image of a Support ROM. A comprehensive 100 page manual completes the package. The Support ROM contains routines to allow an area to be rotated to any angle or distorted to any four-sided shape. Also included are facilities to draw ellipses at any angle and sectors, segments and arcs (in Master or BBC B with Acorn GXR). Another of the features of the Support ROM is a 'Turbo DFS' which gives DFS access times comparable with those of ADFS.

Page Layout Section

The Wapping Editor may be used to create pages of any size from an A6 to a full A3 page. If none of the eight default page types suit your purpose, the stand-alone page creation program may be used to create pages to your own requirements. By using proportionally spaced fonts and genuine microspacing it is possible to print over 150 characters across an A4 page. A unique feature of the Wapping Editor is the 'A5 x 2' page size allowing two A5 pages to be printed side by side onto a single A4 sheet.

The graphics module incorporates the facilities like: pencil, brush, airbrush, polygon, circle, eclipse, fill, cut & paste, etc.

Text may be typeset, either justified or unjustified, in any font anywhere on the page. Simply select which font and text document you wish to use, and pull out a rectangle on the page where you want the text to be – it's as simple as that! Multiple columns may be printed just as easily and a special 'expand' feature may be used to expand the microspacing so that the document exactly fits the space defined.

Word-Processor

The integral word processor is the ideal tool for producing your text documents, although text can of course be read in from any of the other popular word processors such as View, Wordwise etc.

The Font Editor

The font editor module will allow you to design your own typefaces or to modify the ones provided on the utility disc. This sophisticated editor has numerous functions designed to take the tedium and frustration out of producing good looking, well balanced fonts. Each character may be individully proportionally spaced and characters of any size up to 16 x 16 pixels may be defined.
Pictures may also be 'grabbed' from a video source by using the Watford BEEB Video Digitiser.

Wapping Editor Software Pack	**£59**
Wapping Editor plus Mouse	**£79**

(Wapping Editor only works with Master Compact if a Mertec Expansion box is fitted)

Wapping Art Disc

Over 250K of clip art to cut and paste into your Wapping Editor pages. Pictures include maps, transport, people, media, sport, games etc.
Two 'ratio' screens for use with hi-res and rotated A5 pages to ensure images are not distorted when printed out.

Music writing symbols in the form of pattern and brush for quick production of manuscripts are included together with staves.

There are two prepared hi-res pages layed out for printing labels, both single and double width. Ready made label designs are included but these can be easily replaced with your own designs.

A Mode 0 screen dump routine is also included. To pack such a large amount of data onto the discs the screens have been compressed and routines to compress and expand Mode 0 screens are included on both discs. Using the packing routine you can archive large numbers of screens onto a single disc.

£15

Wapping Font Disc 1

Sixteen additional fonts, including smaller version of Oberon and Daisy and two new sizes of the standard font for the Wapping editor.
Also included are three Mode 0 screens containing giant 'headline' fonts to cut and paste to create extra smooth headlines.
Supplied complete with instructions. **£12**

Wapping Font Disc 2

This new addition to our Wapping range of DTP software provides you with additional 23 fonts for the Wapping Editor DTP pack. (80 track discs only). **£13**

Archi A4 Scanner

WE
ARIES FAX LINE

This most advanced Archi A4 image scanner is supplied complete with ROM based podule software. Features provided include facilities for zooming in on an image and inverting the image in X and Y directions, saving and printing of the sprite created. Interactive help is supplied using the !HELP application on the Acorn applications discs. The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures.
Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.
All these features and facilities combine to make the Archi Page Scanner the fast and convenient way in which to add that extra impact, interest and clarity to documents, reports, instruction sheets, manuals, news letters, etc., from your Archimedes DTP package.

New Low Prices:

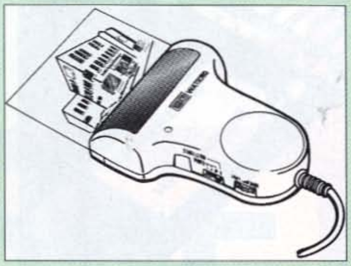
Archi A4 Scanner	£349
Sheet Feeder for above	£95
Scanner + Sheet Feeder	£419

(Dealers Inquiry welcome)

Computer Concept Scanlight

• Scan-Light A4	£375
• Scan-Light A4 + Sheet Feeder	£475
• Scan-Light Junior mono	£178
• Scan-Light Junior 256	£215

Archi Mk II Hand Scanner



Watford Electronics is now able to offer a complete hand held scanning package, possibly the most essential addition to any desk top publishing system, for only £149. The package includes the most comprehensive utility software available for the Archimedes, a high quality hand held scanner, and all necessary documentation to get you going straight away.

SCANNER

The scanner is capable of scanning up to an amazing 400 dots per inch (DPI)! The scanning area is 4" wide, and the height is only limited by the maximum amount of memory available. The dot resolution may be switched to 100, 200, 300 or the maximum 400 dpi. One of four operating modes may be selected offering either pure monochrome scanning, or one of three grey level modes. The grey level modes use different size dither patterns to represent up to 16 shades of grey. There is also a dial to allow the "brightness" to be adjusted over a wide range, in order to optimise the quality for any specific image. The scanner interface is a standard, single width, expansion card (podule) which plugs into the Archimedes' backplane. The socket on the rear panel connects the scanner by 1.8 metres of cable.

SCANNER SOFTWARE

Full use is made of the windowing and the multi-tasking facilities of RiscOS. The software is supplied in a 64Kbyte ROM located on the interface board. The scanner appears as a small icon on the desktop icon bar, and the software is retrieved from the ROM simply by clicking on that icon. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. The other facilities included in the software are.

Cropping and scaling to any size including stretching and squashing in X and Y direction separately.

Colour tinting.
X and Y flip.

Edge detection which turns solid objects into outlines.

Selective directional copying which allows features (i.e. lines or text) to be made thicker or thinner.

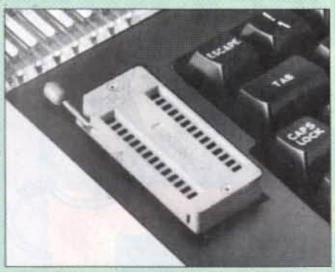
Scanned images may be saved as sprite files or transferred directly into other RiscOS applications (DTP, Draw, Paint) simply by dragging the sprite file into the application's window. Sprites may also be generated using anti-aliasing. This greatly improves picture quality and is particularly effective when scanning material with a range of grey tones, such as photographs. Images can be printed on any printer that is supported by a RiscOS printer driver, with optional settings for portrait or landscape modes, image scale and positioning. Images are printed using the full resolution of the printer and are not limited to the screen resolution.

On-screen help is provided via the RiscOS interactive help facility. Calls are also provided in the ROM for users wishing to write their own software, incorporating the use of the scanner.

AHS-4 Archi 300/400 Version	**£149**
AHS-3 Archi A3000 Version	**£169**

Continued→ → → → → → → → →

Sideways ROM ZIF Socket System



Allows you to change your ROMs quickly and efficiently, without opening the lid. The ZERO INSERTION FORCE (ZIF) socket is located into the ROM Cartridge's position.

- Very simple to install. NO SOLDERING required. The ZIF (Zero Insertion Force) eliminates the possibility of damage to your ROM pins when inserting & extracting.
- The low profile of the socket allows unrestricted access to the Keyboard.
- All data and address lines are correctly terminated to ensure correct operation of suitable ROMs with the BBC micro. We also supply a purpose designed see-through storage container with anti-static lining, allowing you to store up to 12 ROMs, protecting them from mechanical and static damage.
- This versatile hardware solves the problem of running out of socket space. Simply lift the ROM from the ZIF & insert a different one (No pulling or pushing of Cartridges. It is a must for professionals and Hobbyists alike.)
- BBC, B and B+ compatible.

ONLY **£18**

BBC B Low Profile Cartridge System

Complete System consists of: Low profile ROM Cartridge, Socket housing, Cable assembly, 5 labels and a library storage rack for the BBC B.

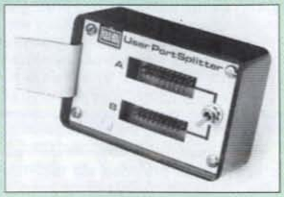
• Complete System	**£11**
• Spare Cartridges	**£2.75**
• Spare Rack	**£1.65**

ROM Cartridges for the BBC Master

Will also accept the new larger Piggy Back ROMs like: Interword, Interbase, Quest, Conquest, etc

Twin **£8;** Quad **£13**

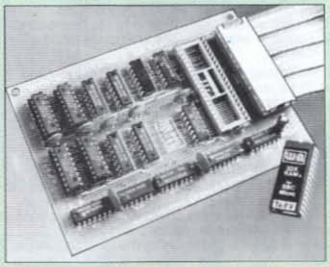
User Port Splitter Unit



Gone are the days when you had to plug and unplug devices from the User Port. This extremely useful little device allows two units to be connected to the User Port simultaneously, and select between them simply by toggling a switch. This device is particularly useful for those people using Quest Mouse and the Watford Video Digitiser or any similar combination

Excellent Value at **£22**

32K Shadow RAM/Printer Buffer Card Expansion Board



A MUST FOR WORD PROCESSING

Simply plug the ribbon cable plug into the 6502 socket and gain a massive 32K of extra RAM.

- While word processing, you don't wait for a slow printer, type in text while printing and save on expensive printer buffers.
- "VIEW" Wordprocessor users can now type in letters in 80 columns and have up to 28K bytes free – 5 times as much as normal.
- In WORDWISE (or WORDWISE-PLUS), preview in 80 columns with the full 24k of text in memory. This product is recommended as an ideal complement by Computer Concepts.
- Combine GOOD GRAPHICS and LONG PROGRAMS. Use the top 20k of the expansion RAM as the screen display memory, leaving all the standard BBC RAM free for programs. Benefit from MODE 0/1/2 graphics and 28k of program space.
- Use the full 32k or the bottom 12K of the expansion RAM as a printer Buffer. (P.S. Only 12K printer buffer can be used with Wordwise & WW+, due to the way they are written).
- Unique facility to turn ROMs off and on again.

Only £54

(Price includes a comprehensive manual and the ROM)

NEW

Commander Joystick

Watford Electronics' new Commander Joystick for the BBC B and Master 128K has a unique dual mode of operation giving selective free floating or self centring fully variable control in both X and Y axis directions. Commander is particularly good for flight simulation and drawing programs.

Features:

- Direct connection to BBC Analogue input port – no interface needed.
- Fully compatible with all BBC Joystick controlled games programmes.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

Price: £15

ARIES CORNER

B-32 Shadow RAM Card

Like the BBC B+, the B32 provides 20k of shadow screen RAM and 12k of sideways RAM. Unlike the B+, the B32 has simple software commands which allow the user to reconfigure the RAM as 16k of shadow RAM and 16k of sideways RAM, or all 32k as sideways RAM.

With the B32, the programmer gets up to 28k of RAM available for Basic, Logo, Cobal, Forth, Lisp and BCPL programs in any screen mode. The business user gets extra memory for View, ViewSheet, Wordwise Plus, Interword and many other applications. For advanced applications, the scientific user gets access to a massive 47k of data storage using the Acorn approved ★FX call.

Sideways RAM enables you to load sideways ROM images from disc, allowing you to have a large library of sideways ROMs (subject to the copyright holder's permission) stored on disc. The B32's sideways RAM can also be used to extend any operating system buffer (such as the printer buffer) or to load tape programs into a disc system.

The B32 simply plugs into the 6502 processor socket on you BBC micro – no flying leads to connect and no soldering. Provision of the onboard ROM socket means that the Aries-B32 control ROM does not use up one of your existing ROM sockets.

- Recommended by Computer Concepts for use with their Inter series of ROMs.

Price: **£59**

Aries B-12 Sideways ROM Board

The B-12 provides a total of twelve sideways ROM sockets (the four in the original machine are replaced by the twelve on the board), all fully accessible by the MOS sideways ROM system. In addition, there are two sockets for sideways RAM, giving up to 16k of RAM using 6264 static RAM chips.

If you do not have a B32 or B20, a small adaptor module (the Aries-B12C) is available at a nominal cost

Price:	Aries B-12	**£36**
	Aries B-12C	**£5**

Aries B-488 IEEE-488 Interface Unit

The Aries-B488 is an interface unit to enable the BBC micro to control and monitor IEEE-488 bus systems. The IEEE-488 bus (also known as the 'GPIB or 'HP IB') is the standard method of interconnecting programmable laboratory instruments and control equipment. Using the B488, up to 15 devices may be connected in a single high-speed data network.

£238

Voltmace Joysticks

Delta 3B Single Joystick	**£10**
Delta 3B Twin Joysticks	**£15**
Delta 3C Joystick for Compact	**£10**
Delta 14B Single Joystick	**£11**
Delta 14B/1 Adaptor Module	**£12**
Transfer Software Disc-Tape	**£7**
Delta-Cat A mouse eliminator Joystick for the Archimedes	**£24**

Delta Base B

Analogue aircraft style yoke Joystick to run in the analogue port of the BBC B & Master 128 **£25**

ROM/RAM Card

Watford Electronics announced the first ever commercial ROM board for the BBC micro, the Watford Electronics 13 ROM Socket Board 9 years ago. Following the success of this board, we have designed what probably represents the ultimate in expansion boards, Watford's ROM/RAM card.

- NO SOLDERING required to fit the board.
- NO User Port corruption (avoids problems with the mouse, modems, Eprom Programmers, etc.)
- Fully buffered for peace of mind.
- Compatible with BBC micros (not BBC+ or Master).
- Total number of ROMs increased from 4 to 8.
- Up to 8 banks of sideways RAM (dynamic).
- Option for 16k of battery backed CMOS RAM (CMOS RAM needs one ROM socket).
- Software Write protect for ALL RAM.
- Read protect for CMOS RAM (ALLEVIATES crashes during ROM development).
- Separate RAM write register (&FF30 to &FF3F).
- Automatic write to currently selected RAM socket for convenience.
- FREE utilities disc packed with software.
- Compatible with our DDFS board, 32k RAM Card, Delta Card, sideways ZIF, etc.
- Large printer buffer.
- UNIQUE fully implemented RAM FILING SYSTEM (similar to the popular Watford DFS).
- ROM to RAM load and save facilities.

The SFS (Silicon Filing System) can utilise up to the full 128k of RAM (with the SFS in any paged RAM) as a SILICON DISC. This behaves as a disc drive, with all the normal Watford DFS features (including OSWORD &7F for ROMSPELL, etc.) to provide an environment that looks like a disc but loads and saves MUCH faster.

The ROM-RAM Board plugs into the 6502 CPU socket. This leaves free all the existing ROM sockets, which can still be used normally.

Any ROM that can be plugged into the BBC micro's own ROM sockets may be used in the ROM-RAM Board.

The ROM-RAM Board is supplied with all ordered options fitted as standard. Upgrade kits (with full instructions) are available for all of the options, for later.

PRICES:

- ROM/RAM card with 32k DRAM £45
- ROM/RAM card with 64k DRAM £59
- ROM/RAM card with a massive 128k DRAM £99

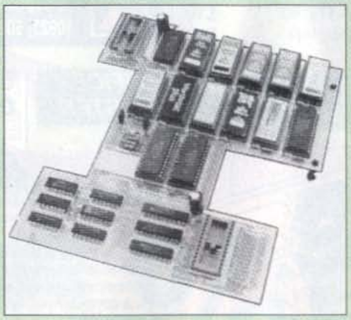
OPTIONAL EXTRAS:

- 16k plug-in Static RAM kit £8
- 16k DRAM for Upgrade £13
- Battery backup £3
- Read and Write protect switches £2 each

Complete ROM-RAM card with all options fitted £109

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Solderless Sideways ROM Socket Board



The key features of this no fuss, easy to install card are:

- Increases your BBC Micro's ROM capacity from 4 to 16.
- **No soldering required.**
- Very low power consumption.
- Compatible with Torch, DDFS, RAM Card, 2nd Processor, etc.
- Socket 14 takes two 6264 RAM chips.
- Read protect to make RAM "Vanish") allows recovery from ROM crashes.
- Battery backup option for RAM chips.
- Supplied ready to fit with comprehensive instructions.

Price: Only £35
Battery Backup fitted **£39**
Battery Backup only **£3**
16K Sideways RAM **£8**

- Sideways RAM Utilities Disc for Solderless ROM Board. Includes the options to load and save ROM Images and the facility to use Sideways RAM as Printer Buffer.

Only: £8

BBC Educational Software

- Maths with a Story 1 (Disc). 4 primary level maths programs £20.00
- Maths with a Story 2 (Disc). 4 further maths programs. £20.00
- Picture Craft (Disc) 6-14 age group. Pack consists of flexible geometrical design & colouring programs. £17.00
- ECOLOGY O-Level program. £20.00
- POLYMERS O-Level program. £20.00
- Classification & Periodic Table O-Level. The suite is supplied with its own database of chemical elements which can be classified according to your own rule. £20.00
- ADVANCED TELETEXT SYSTEM £8.65
- PERIOD TABLE SOFTWARE £20.00
- Computers at Work – Primary £17.35
- Introducing Geography 11-17 years £17.50
- Electric Fields 6-14 years £11.25
- Espana Viva – 3 Discs £19.95
- WHITE KNIGHT Chess game £16.00
- A Vous La France £29.00
- **FUN SCHOOL 2 – Red:** Under 6 yrs £12.00
- **FUN SCHOOL 2 – Green:** 6-8 yrs £12.25
- **FUN SCHOOL 2 – Blue:** 8 yrs+ . £12.50
- **FUN SCHOOL 3 – Red** £18.50
- **FUN SCHOOL 3 – Green** £18.50
- **FUN SCHOOL 3 – Blue** £18.50
- Six French Games – Aimed at pupils in their first year of French, but also useful as revision for more advanced students 11 years+ £26
- More French Games – Another 6 games 12 years+ £26
- Au Restaurant and Accident de Route 12 years+ £26
- Boulogne and Oh-Les – 2 programs for beginners £26
- Letters to French Penpals – 11 years+ £26
- French Programs with Henri Beret – The programs in this series present vocabulary, grammar and role-play phrases in the form of animated games. 11-16 £22
- Six German Games – Aimed at pupils in their first year, but useful as revision for more advanced student of German. 12 years+ £22
- More German Games – Aimed at pupils in their 2nd year of learning German. 12 years+ £22
- The Cloze Program – Using context clues to predict is much more than a gap filling exercise. All ages £26
- An Introduction to Electronics – Brings together all the basic electronics required for a GCSE Physics or CDT course. 14-16 years £26
- Computer Control – This is a package of 3 programs simulating control of a greenhouse, a robotic arm & a chemical plant. 14-16 years £26
- The Nuclear Reactor – An interactive, menu driven program for GCSE pupils. Demonstrates & explains nuclear fission & the chain reaction. 14-16 years £22
- PUNCMAN Learning punctuation
  - Puncman 1 & 2 for 7 – 13 years £15
  - Puncman 3 & 4 for 8 – 14 years £15
  - Puncman 5 & 6 for 8 – 15 years £15
- Yes Chancellor – A chance to take over number 11 at Downing Street. 12 years+ £18
- Letters & Pictures – Introduces phonic skills to Infants 6-8 years £15
- Numbers & Pictures – Early number learning is a great fun (4-6 years) £15
- Note Invaders – Budding musicians can learn the notes on the Clef with this elegant game 3 programs (7 to Adults) £15
- Maps & landscapes No. 1 (9-14 years) £18
- Help Your Child learn Basic Map work No. 2 (9-14 years) £18
- Pirate – Educational Adventure (8-14 years) £15
- Spelling Week by Week (6-14 years) £18

Archimedes Software

- Animated Alphabet (3-6 yrs) £21
- Arcventure (8-12 yrs) £29
- Bookbinder £43
- Bumper Disc £14
- Bumper Disc 2 £14
- Craftshop 1 £26
- Craftshop 2 £26
- Christmas Allsorts – Clip Art (6-16 yrs) £16
- Converta-Key £16
- Data Word £16
- Desktop Stories £35
- DigiSim £35
- Dream Time (5-7 yrs) £23
- Droom £19
- Farm (5-7 yrs) £19
- Fleet Street Phantom (9-13 yrs) £25
- Fun School 2A Red (up to 6 years) £12
- Fun School 2A Green (6-8 years) £14
- Fun School 2A Blue (8 years +) £14
- Gate Array Teaching System £68
- Glimpse Clip Art Utility (7-16 yrs) £8
- Highlighter (6-16 yrs) £42
- Jiglet £27
- Jigsaw £28
- Mapventure (9-13 yrs) £24
- Microbugs £24
- Money Matters £16
- Nature Park Adventure (7-9 yrs) £27
- Numerator £60
- Picture Book £16
- Recall (6-13 yrs) £39
- Sellardore Tales £24
- Snippet £26
- Space Mission Mada (9-13 yrs) –
- Sting of the Dump (9-13 yrs) £22
- Target Maths £16
- Viewpoints (9-12 yrs) £33
- Wizard's Revenge (7-10 yrs) £17
- Worst Witch (7-10 yrs) £25

Continued→ → → → → → → → →

Computer Concept's ROMS

Communicator	£49
Disc Doctor	£18
Inter BASE	£49
Inter CHART	£25
Inter SHEET	£37
Inter WORD	£36
Mega-3 ROM	£76
Spell Master	£42
Wordwise	£24

Wordwise plus

£40

We are giving away absolutely **FREE,** the superb Word-Aid ROM worth £24, with every WORDWISE PLUS package bought from us.

Word-Aid

The most comprehensive utilities ROM for Wordwise-Plus

Extend the power of your Wordwise Plus word processor with this most advanced ROM from Watford. By utilising the powerful Wordwise Plus programming language, WordAid provides a whole host of extra features, all accessed via a special new menu option. This ROM has been personally approved by Mr Charles Moir, the author of WORDWISE PLUS.

- Alphabetical sorting of names and addresses.
- Text transfer options.
- Chapter marker.
- Epson printer codes function key option.
- Search and display in preview mode.
- Embedded command removal.
- Print Multiple copies of a document.
- Multiple file options for print and preview.
- Address finder.
- Label printer.
- Mail-merger.
- Number/delete/renumber.
- Clear test-segment area.
- BBC B, B+ and Master compatible.

Only **£24**

(N.B. Word Aid requires a Disc interface in your Micro)

Acorn ROMS

View 3.0 ROM	£45
Viewsheet (Acornsoft)	£36
Viewstore	£36
Viewspell with 80 track disc	£25
Viewplot Disc	£20
(Please specify for Master 128 or Compact)	
View-Index	£12
Overview packs 1 & 2	£65
Hi-View	£38

MINI OFFICE II

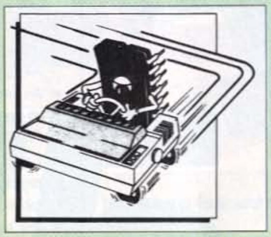
DISC Version for BBC B & B+	£14.00
DISC Version for BBC Master	£16.00
DISC Version for the Compact	£18.00

(When ordering please specify for which Micro & 40 or 80 track Disc)

View Printer Driver Discs

Epson FX & RX 80	£10
Juki & Brother HR	£10

View Printer Driver ROM



View is a powerful word processor, but it seriously lacks in terms of printer driver support. With the View Printer Driver ROM, the View users will find themselves in the realms of advanced word processing.

The VPD extends View's printer command with a series of mnemonic commands. All standard highlight sequences are also supported. A large range of printers are supported by drivers contained within the ROM (the drivers can be downloaded and customised). Printers supported include: Epson's MX, RX, FX, LX, JX80 range, HI80, KP810/910, PW1080, JP101, HR15, M1009, GLP, Panasonic KX-P1081/2, JUKI 6100, etc.

Other printers are readily supported by defining a Printer Driver using the built-in Printer Driver Generator. The features mentioned below are available to both the built in Printer Drivers and user defined drivers (assuming the printer supports the features).

NLQ control, Underline, Bold, Proportional Spacing, Microspacing, Italic, Superscript, Subscript, Condensed, Enlarged, Double Strike, Set lines per inch numerically (e.g. LPI 6), Set characters per inch numerically (e.g. CPI 5), Select printer font, Select printer ribbon colour, Translation sequences, Emulation of BBC Character Set, Simple numeric expressions for certain operations, Full printer setup, Send control codes, Print prompt on screen, Redifinable Pad character, Pause for key press, Prompt to change daisywheel, and Execute ★ command when printing.

Other features include a very powerful on-screen preview, with bold, italic, underline, super/subscript, enlarged highlights, and a special printer driver to allow memory-based text to be previewed by View 1.4. Of course, View 1.4, 2.1 and 3.0 are all supported, as is Shadow RAM and 6502 Second Processors. The BBC B series and Master series of micros are supported. A comprehensive manual is supplied. All in all, a very professional product for the discerning user who wants power at their finger tips.

Price: Only £29

CREDIT CARD
24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

OFFICE MASTER

CentreSoft
Office Master

CASHBOOK – A complete "Stand Alone" accounting software package for the cash based sole trader/partnership business. It is designed to replace your existing cashbook system and will provide you with a computerised system complete to trial balance.

FINAL ACCOUNTS – Will take data prepared by the Cashbook module and produce a complete set of accounts as following: Trial Balance with inbuilt rounding routine; Notes to the accounts; VAT Summary; Profit & Loss A/C; Balance Sheet.

MAILIST – A very versatile program. Enables you to keep records of names and addresses and then print, examine, sort and find them, all with special selection techniques.

EASILEDGER – A management aid software tool designed to run alongside an existing accounting system. Essentially a Debit/Credit ledger system which can handle sales, purchase and nominal ledger routines to provide instant management information.

INVOICES & STATEMENTS – Greatly reduces the time and cost of preparing Invoices and Statements by storing essential information like customer names, addresses and account numbers. Has VAT routines and footer messages facility.

STOCK CONTROL – Allows you to enter stock received, stock out, summary of stock items and current holdings together with details of total cost, total stock to minimum level, units in stock ordering, quantity and supplier detail.

All this for only **£21** (Disc)

OFFICE MATE

CentreSoft
Office Mate

- ● DATABASE
- ● BEEBCALC SPREADSHEET
- ● BEEBPLOT GRAPHICS

DATABASE – Set up a computerised card index system with powerful search facilities.

SPREADSHEET – Offers many calculation and editing features

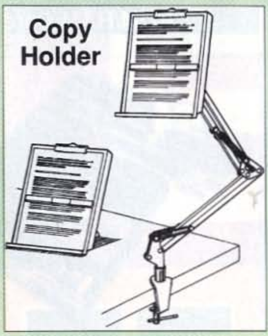
BEEBPLOT – Provides visual representation from Spreadsheet data.

Only £10 (Disc)

Acorn Speech Synthesizer package complete, for the BBC B Microcomputer

Special Offer £14

Copy Holder



Whether you want to type in your latest program or the draft of a new trilogy, Watford's manuscript holders are superb for holding your paper at the ideal height and angle to allow you to read and type in ease and comfort.

Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly by means of a plastic retaining ruler and a clip grip. (for resting books or magazines, the desk top version is recommended).

Desk Top **£8** (carr. £3)
Angle poise **£12** (carr. £3)

The Epson RX/FX/KAGA Printer Commands Revealed Handbook

So you bought yourself a new printer, because the salesman in the shop showed you how clever it is and impressed you with all sorts of printouts to show its capabilities – he may even have offered you a special price.

However, now that you have got it home and connected it to your BBC microcomputer, you are wondering how to make it perform these magical tasks. The manual seems to give no clues, and when you type in the example programs, the computer throws the LPRINT statements back in your face.

Now what do you do, when this £400 piece of high technology refuses even to move its head, and you have stayed up until 2 in the morning with copious supplies of coffee, desperately trying to print something out? Once again, Watford Electronics comes to your help with our new book entitled 'THE EPSON FX-KAGA PRINTER COMMANDS REVEALED'.

This book describes in plain, easy to understand English, how to use and make the most of your KP810, PW1080A or any other Epson FX80 compatible printers like Panasonic KX-P1080/1, etc., with the BBC Micro, both from Basic and Wordwise.

It describes in detail how to obtain the maximum in graphics capability from your printer and includes full indexes allowing you to cross index the numerous commands. Every command is explained in detail, with an accompanying BBC Basic program and an example of its use from Wordwise.

£5.95 (No VAT)

ALL PRICES EXCLUDE VAT

BOOKS
(No VAT on Books)

15 Hr Wordprocessing BBC/View	£6.95
15 Hr Wordprocessing BBC/WW & WW+	£6.95
30 Hour BASIC (BBC Micro)	£12.95
1st Word Plus Rel. 2 Manual	£10.00
A3000 Technical Reference Manual	£29.00
Acorn DTP A Guide to	£17.00
Advanced User Guide for BBC	**£10.95**
Archimedes 1st Step – Beginners Guide	£9.95
Archimedes Assembly Language	£14.95
Archimedes BBC Basic Guide	£20
Archimedes DTP Manual	£10.00
Archimedes Operating System	£14.95
Archimedes Risc-Os Programmers Reference Manual	£79.00
Arm Assembly Lang. Prog. Manual	£15
Assembly Language Quick Ref.	£21.95
BASIC 2 – User Guide	£2
Basic V – A Dabhand Guide	£9.95
BBC Basic Guide (Archimedes)	£19.95
BBC Micro – Within the	£11.95
BCPL User Guide	£9
C Big Red Book of	£8.95
C – A Dabhand Guide to	£14.95
C Programming Lang. 2nd Edition	£24.95
COMAL – Introduction to	£9.50
Deutsch Direkt! (Book only)	£5.95
DISC FILING SYSTEM (DFS) Operating Manual for BBC	£6.95
FORTH on the BBC Micro	£9.95
ISO-PASCAL Reference Manual	£9.95
Master 512 Guide – Dabs Press	£9.95
Master Operating System	£12.95
Master Reference Manual Part 1	£14
Master Reference Manual Part 2	£14
Master Reference Manual – Advanced	£17
MINI OFFICE II – A Dabhand Guide	£9.95
Mouse User Guide to BBC Micro – the Complete	£5.95
Example Programs on Disc for above	£4.95
PASCAL Programming	£10.95
Risc OS Style Guide	£9.95
RISC Technical Manual 260 pg	£14.95
The Epson FX-KAGA PRINTER Commands REVEALED	**£5.95**
Understanding Interword – A Beginners Guide	£4.95
View 3.0 User Guide	£10
View Guide (View 2.1)	£5.00
View, Viewsheet & Viewstore – Mastering	£12.95
Viewsheet & Viewstore Dabhand Guide	£12.95
VIEW Dabhand Guide	£12.95
Viewsheet User Guide	£10
Viewstore User Guide	£10
Z88 – A Dabhand Guide	£14.95
Z88 Computing	£9.95
Z88 Magic	£14.95

BOOKS for IBM PC & Compatibles

1-2-3 For Business	£25.95
1-2-3 Mastering Release 3	£22.95
1-2-3 Mastering – 2nd Ed.	£20.95
1-2-3 Quick Reference	£8.45
1-2-3 Using – Rel. 3	£25.95
8086/8088 Ass. Language Quick Ref	£8.45
8086/8088 Programming the	£17.95
Accountancy software in Business – Using	£14.95
Agenda – Using	£21.95
Aldus Pagemaker	£27.95
Aldus PageMaker – Using	£21.45
Amstrad 9512 – Using the	£10.95
Amstrad Basic 2 User Guide	£9.95
Assembly Language Quick Ref	£8.45
Autocad 4th Ed – Mastering	£31.50
Autocad – Mastering Through Rel. 10	£28.95
Autocad – Inside Release 11	£27.95
Autocad – Inside 6th Ed	£32.45
Autocad – Mastering Through Rel II	£28.95
C Introducing	£12.95
C Programming Language 2nd Ed	£26.95
C – Teach Yourself	£19.95
Clipper – Using 2nd Ed	£22.95
Computer Users Dictionary	£9.95
Corel Draw 2nd Ed Mastering	£25.50
Corel Draw Quick Ref Thro V1.2	£7.95
Corel Draw made easy	£24.95
Corel Draw v2 Quick Ref	£8.45
dBase 3/4 Complete Ref	£27.45
dBase III Plus – Complete Reference	£19.95
dBase III Plus Handbook 2nd Edition	£22.95
dBase Instant Reference (III & III+)	£10.95
dBase IV – Handbook	£21.95
Desk Jet Unlimited	£19.95
DOS & BIOS Function – Quick Ref Guide	£7.95
DOS Instant Ref.	£9.75
DOS Instant Reference (up to 3.3)	£6.95
DOS Power Tools	£46.45
DOS – Programmers Ref. Manual 2nd Ed	£25.95
Excel for Windows – Quick Ref.	£8.95
Fax – Management with	£7.95
FAX – Managing with	£12.95
Framework III – Mastering	£24.95
GW Basic Users Guide & Ref	£12.95
Hard Disc Instant Ref	£10.95
Hard Disc management – Quick Reference Guide to	£4.95
Hard Disc – Using Your	£27.45
IBM PC & PS/2 – Inside the 3rd Ed	£21.70
Microsoft GW BASIC	£17.95
Microsoft Windows 3 – Using 2nd Ed	£20.95
Microsoft Windows Illustrated	£21.95
Microsoft Word 5 _ Using	£20.45
MS-DOS – ABC's of 2nd Ed.	£17.95
MS-DOS Bible 3rd Edition	£24.95
MS-DOS First Book	£15.50
MS DOS for Beginners	£17.45
MS-DOS Quick Ref Guide 5	£8.95
MS-DOS – Running 4th edition	£19.95
MS-DOS – Supercharging 2nd Edition	£17.95
MS-DOS Users Guide 3rd Edition	£27.95
MS-DOS – Using	£21.95
MS-DOS 5 – Quick Start	£18.45
MS-DOS 5 User Hand Book	£19.95
MS-DOS 5 – Upgrading to	£14.95
MS-DOS 5 Using	£29.95
MS-DOS Tricks & Tips	£16.45
Netware User Guide	£23.95
Networking Personal Computers 3rd Ed.	£20.95
Norton Utilities – Inside the	£22.95
Novell Network – Mastering	£27.95
Novell Network – The ABC of	£21.95
Novell Network – Using	£27.45
PageMaker on IBM PC – Using	£22.95
Pagemaker – Using	£22.95
PCs & Compatible Computers for Beginners	£14.95
PC Crash Course 2.0 2nd Edition	£19.95
PC Tools – Quick Ref	£8.45
Programming Guide to EGA & VGA Cards	£25.95
Quattro – Mastering Pro 3	£21.95
Quattro Pro III – Using	£25.95
Quatro Pro Quick Ref.	£8.45
Smart – Using	£21.45
Smartware II – Mastering	£22.95
Smartware II – Using	£27.45
Smart, tips, tricks and traps (QUE)	£22.95
Supercalc 5 – Using	£21.45
Supercalc Professional	£17.95
Symphony Made Easy	£19.95
Symphony – Using Special Ed.	£27.45
Symphony 4th Edition – Mastering	£24.95
Turbo C Bible	£27.95
Turbo C++	£22.95
Turbo Pascal 5 – Using	£22.95
Turbo Pascal – Advance Techniques in	£22.95
Turbo Pascal Using	£27.45
Unix – Using	£27.45
Upgrading & Repairing PC's	£27.45
Ventura Mastering – 2nd Ed.	£22.95
Ventura Publisher – Using	£22.95
Ventura – Instant Reference	£10.95
Ventura – 3rd Edition	£24.95
Window Programming 2nd Ed	£27.95
Window 3.0 Programming	£27.95
Window 3.0 Quick Ref.	£7.95
Word for Windows made easy	£15.95
WORD for Windows – Using	£22.95
Wordperfect 5 – Using	£25.95
Wordperfect – Quick Reference V5	£8.45
Wordperfect 5.1 – ABC's of	£18.95
Wordperfect 5.1 – 1st Book of	£15.50
Wordperfect 5.1 – Mastering	£24.95
Wordperfect 5.1 Quick Start	£18.45
Wordperfect 5.1 – Using Special Ed	£25.95
Wordperfect for Beginners	£17.45
Wordstar & CPM Made Easy	£15.75
Wordstar Using 5.5 & 6 3rd Ed	£25.95
Wordstar 6.0 Made Easy	£19.95

Carriage on Books vary between £2 to £4.00, depending on their weight

New Release

ACORN TO PC

Stop the Confusion!

Do you have to use both Acorn computers and PC's? Would you like to use your Archimedes or A3000 in PC-emulation mode but are unsure of the new commands?

Although Acorn machines (such as the BBC B, the Master, the Archimedes and the BBC A3000) are mainly used in education, most commercial computers use other operating systems, particularly MS-DOS. As a result school computer users are at a disadvantage when moving into 'business' computing. PCs and other commercial computers use MS-DOS as the operating system, so commands for formatting, copying, backing up, printing and the modem are not the same. Even file names are written differently! And did you know that there is one Acorn command which, if used in MS-DOS, wipes everything in the current directory?

'ACORN TO PC' enables you to change over painlessly. It shows clearly and quicly how, why and where the two systems (Acorn and MS-DOS) differ. As with a foreign language dictionary, you can use the book to transfer either way – from Acorn to MS-DOS, or from MS-DOS to Acorn.

'ACORN TO PC' also acts as a handy reference guide to all Acorn star commands and their MS-DOS equivalents. It also has an extensive and readable explanation of the directory tree and hierarchical filing systems in general. Both DFS and ADFS Acorn systems are covered.

'ACORN TO PC' is written clearly and concisely by Dr. John Lockley, who has wide experience of writing and broadcasting. He is currently appearing as a regular contributor on Radio 5, and is co-author of 'The Complete BBC Computer User Handbook'.

Price: £12.95 (No VAT)

The Complete BBC Computer User Handbook

If you own a BBC B, B+, Electron, Master 128 or Master Compact, or Archimedes, then this is the book for you. It shows how to get the best from your machine, and how to make it work for you. The general style and level of presentation means that both the expert and beginner alike will feel comfortable with the quality and quantity of the material.

Subjects covered include the general use of computers, hardware design and peripheral devices like printers, disc drives, etc, and Networking. Programming hints and tips and various disciplines for making a better program are discussed in some detail, including debugging of specific errors. Standard programs are covered, such as wordprocessors, spreadsheets, databases, graphics, communications, etc., which brings you neatly on to the subject of using computers in the office or at work – even giving advice on writing and marketing your own programs.

A book you will enjoy to use as a reference, or read from cover to cover, over and over.

Only: **£14.95** (No VAT)

The Complete Mouse User Guide to BBC Micro

This manual has been written to reveal the secrets of the mouse. It explains all the principles required by the hardware and associated software, and also example listings for inclusion into custom programs. The manual first details the basic principles of the mouse and a simple program which uses these principles. This information should be adequate for most applications. However, it is possible to improve the performance of the mouse by expanding on the principles already used in the software. This is again fully explained and an example program given.

It is possible to gain a full understanding of the mouse from this manual. For those not interested in exactly how the mouse functions, complete example programs are also included. These may be typed directly into the micro, without the need for any understanding of the hardware or software involved, enabling the mouse to be used for custom applications.

Price £5.95 (No VAT)

Example programs on Disc £4.95

Beeb PC (BASIC)

Beeb PC Basic is designed for program authors wishing to convert programs so that they will run on IBM personal computers. To convert BBC BASIC programs manually can waste days of valuable time with every occurrence of common statements such as PROC, DEFPROC, TAB, having to be changed.

Beeb PC (BASIC) automates many of these changes, and will convert majority of BBC statements that are invalid for IBM BASIC into equivalent acceptable statements. In addition BBC BASIC data files can be converted to IBM BASIC format, with support provided for all BBC data formats:- INTEGER, REAL & STRING.

Price: £38

Beeb DOS 3.0

(Now reads Archimedes Discs)

The BBC and IBM PC's are the most popular micros in the UK. The BBC is firmly established in the education sector and the IBM is the industry standard in the business world. The pools of information and applications held on these computers are immense, yet the means of passing information between them are very limited. Beeb DOS provides a practical method of transferring information between these two micros.

Beeb DOS is a collection of utilities which run on the PC's and enable it to read and write information on BBC discs. You can transfer files between your PC's 360K floppy, high density floppy or hard disc and your BBC discs. In addition Beeb DOS allows you to catalogue, format and compact BBC discs and delete, re-name, lock and unlock BBC files, all on PC's. Each Beeb DOS utility is written in IBM assembler and is run directly from PC or MS-DOS. The Beeb DOS utility can be run from floppy disc, hard disc or RAM drive.

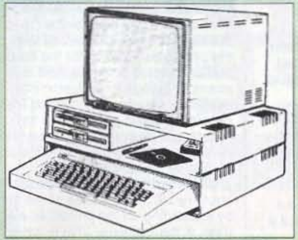
Beeb DOS is supplied on an IBM 5.25", 360K disc complete with a comprehensive operating manual. (Will only work on 360K Disk Drives & read only ADFS and Watford DDFS – not DFS).

Price: £39

(Please write in for technical literature)

Continued→ → → → → →

Plinths for the BBC B & Master 128K Micros

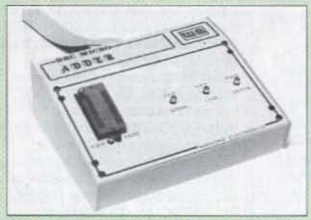


Protect your computer from the heat of your VDU. Our micro plinths have slots for maximum ventilation. The single plinth is suitable for a BBC and VDU, whilst the double height version provides enough room for our stacked disc drive and other peripherals like, Eprom programmer, music unit or simply discs & stationery. The computer slides neatly in the lower section allowing easy access to remove the lid. Colour: Matching BBC Beige.

Single BBC Plinth	420 x 310 x 105mm	**£13**
Double BBC Plinth	420 x 310 x 210mm	**£24**
Single Master Plinth	490 x 310 x 105mm	**£14**
Double Master Plinth	490 x 310 x 210mm	**£26**

(Carr. Single plinth £2; double plinth £3)

ADDER



The Adder unit connects to the User Port and draws its power from there too. The EPROM is mounted in a top quality ZIF socket. There are no switches or controls as Adder is entirely software controlled.

Features:

- Two ultra fast programming algorithms or standard slow algorithm.
- Supports standard 21V programming and newer 12.5 volt EPROMs. (Software switched).
- The RAM image to be programmed can be built up in many ways. Sections of image can be loaded separately. Part programming. Read EPROM. Edit data in memory.
- Automatic processing to handle a list of files to program into the EPROM.
- Automatic disc buffering to allow programming of 32K 27256 devices from a 32K file without extra effort.
- Verification gives detailed error list and checksums are maintained. There is also a blank check facility.
- Works with all standard filing systems. Generates header code for RFS ROMs to allow Basic programs etc. to be stored in EPROM. More than one file per ROM permitted.
- Programs the following EPROMs: 2516, 2716, 2532, 2732, 2764, 27128, & 27256.

£65 (£5 Carr)

TEX EPROM ERASERS

EPROMs need careful treatment if they are to survive their expected lifetime. Over erasure of EPROMs very rapidly turns them into ROMs! The TEX erasers operate following the manufacturers specifications to give the maximum possible working life by not erasing too fast.

- **ERASER EB** – Standard version erases up to 16 chips. £34
- **ERASER GT** – Deluxe version erases up to 18 chips. Has automatic safety cut-off to switch off the UV lamp when opened. £36
- Spare UV tubes. £12

CREDIT CARD 24 HOUR
Ansaphone Hot Lines
(0923) 50234 or 33383

Servisol Foam Cleaner

This king size multipurpose foam cleaner spray is ideal for cleaning Keyboard, Monitor, Disc Drive & Computer furniture surfaces.

£2.50

Antistatic Aerosol Spray

Ideal for cleaning and preventing static build-up on TV/Monitor Screens.

£2.50

Aerosol Dust Spray

Ideal for removing dust & dirt from Keyboard & similar inaccessible spaces. **£3**

Spares for BBC Micro

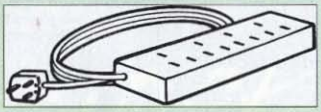
UHF Modulator	**£4**	16MHz Crystal	**£2**
Speaker Grill	**£1**	17.734 MHz Xtal	**£2**
Speaker	**£3**	32.768MHz Xtal	**£1**
Keyswitch	**£1.50**	BBC B Refurbish	
Master PSU	**£59**	Casing	**£25**
Master Keyboard	**£62**	Keyboard	**£46**
Master Casing	**£49**	Power Supply	**£59**
Replacement Flexible 17 way Keyboard Connector			**£4**

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage translent spikes/surges caused by lightening or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket



4 way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required. Very useful for tidying up all the mains leads from your peripherals.

£9.50

Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System

£16

ROM Extraction Tool

This extremely useful tool allows you trouble free chip insertion and removal from your computer by distributing the removal force over the whole body of any 24 or 28 pin chip. **£2**

Metal Chip Extractor **£3**

28pin DIL Header Plug

SOLDER type **£1.50** IDC CRIMP type **£1.95**

8 Way DIP Switch

Increase the speed of your Disc Drives by soldering this switch to your BBC B or B+ keyboard

Only **£1.00**

---

28 pin ZIF SOCKET (Textool) **£6.95**

Connecting Leads

(All ready made and tested)

CASSETTE LEADS 7 pin DIN Plug	
to 3 pin DIN Plug + 1 Jack Plug	**£2.50**
to 7 pin DIN Plug	**£3.00**
to 3 Jack Plugs	**£2.50**
6 pin DIN to 6 pin DIN Plug (RGB)	**£3.00**

Disc Drive Power Leads

Supply from BBC power supply to standard Disc Drive Connection: Single **£3.00;** Dual **£3.75**

Disc Drive Interface Leads

BBC to Disc Drives Ribbon Cable
Single **£4** Twin **£6**

Miscellaneous Connectors

	Plugs	Sockets
RGB (6 PIN DIN)	**50p**	**75p**
RS423 (5 pin Domino)	**70p**	**80p**
Cassette (7 pin DIN)	**40p**	**95p**
ECONET (5 pin DIN)	**35p**	**50p**
Paddles (15 pin 'D')	**150p**	**250p**
Disc Drive Plug 4 way	**100p**	–
6 way Power Connector	**120p**	**150p**

Watford DATA DUCK

Convert two single Disc Drives into one Dual Drive with this simple external unit (Suitable for Disc Drives with PSU. For Disc Drives without PSU, you will also require Watford Power Duck, see below).

£14

Watford POWER DUCK **£8**

CHIP SHOP

1 MB-10 DIL D-RAM	**£4.50**
1 MB ZIP D-RAM	**£4.90**
256K x 4-8 DIP	**£4.75**
256K x 4-8 ZIP	**£4.80**
DS3691	**£4.50**
DS88LS120	**£5.25**
LM324	**£0.45**
SN76489	**£5.50**
SAA5050	**£8.75**
UPD7002	**£6.00**
2764-250nS	**£3.00**
27128A-250nS (12V5)	**£2.50**
27128-250nS (21V)	**£4.00**
27256-2	**£3.00**
27512-2	**£4.50**
27C101G (1 Meg)	**£7.00**
4013	**75p**
4020	**£1.00**
4164-10	**£1.55**
4464-10	**£3.50**
4816 RAM	**£2.00**
41256-8	**£2.00**
41256-10	**£1.50**
6264LP-8K	**£4.00**
6502A CPU	**£5.00**
65C02 3M	**£9.75**
65C12	**£9.00**
6512A	**£10.00**
6522	**£4.00**
6522A	**£5.00**
62256ALS-15	**£10.00**
62256P-12	**£8.50**
6818	**£4.00**
6845SP	**£6.00**
68B50	**£2.95**
68B54	**£7.50**
7438	**50p**
74LS00	**50p**
74LS04	**50p**
74LS10	**50p**
74LS123	**£1.00**
74LS163	**£1.00**
74LS244	**£1.00**
74LS245	**£1.00**
74ALS245	**£2.75**
74LS373	**£1.00**
74LS393	**£1.00**
75453	**£1.00**
75159	**£3.00**
9637	**£2.00**
ICL7673PA	**£3.00**

Assorted ROMS

ACORN ADFS	**£25**
ACORN BASIC 2 plus User Guide	**£22**
Acorn BCPL	**£42**
ACORN DNFS	**£17**
Acorn FORTH	**£32**
Acorn Graphics	**£25**
Acornsoft C Disc	**£36**
Acorn LISP	**£19**
Acorn OS B+	**£25**
Acorn OS 1.2	**£14**
Basic Editor	**£24**
BBC PCB Designer	**£49**
Beebmon	**£22**
Buffer & Backup	**£20**
Communicator	**£49**
Dump Out 3	**£25**
EPSON NLQ ROM	**£25**
Graphics Extension Rom	
GXR-B	**£21**
GXR-B+	**£22**
ICON Master	**£28**
Logotron LOGO	**£43**
MASTER OS ROM	**£38**
Master ULA (47)	**£15**
Master ULA (60)	**£10**
Micro Prolog	**£25**
Microtext Disc	**£46**
Microtext Rom	**£199**
NLQ DESIGNER	**£25**
Numerator – Archi	**£69**
Numerator – BBC	**£39**
Pendown ROM	**£32**
Rom Manager	**£20**
ROMIT	**£29**
SERIAL ULA	**£13**
TED	**£35**
Termulator B, B+	**£28**
Termulator Master	**£32**
Video ULA	**£14**
ULTRACALC II	**£26**
1Mb OS ROM	**£39**

NEW Hi-Speed, Low Cost Archi Hard Disc Drive

Watford's NEW Innovative IDE interface card brings the latest advances in PC hard disc technology to within reach of the Archimedes user. Because of the integration of the controller and drive electronics onto one compact board, Watford Electronics have been able to include extra features into the drive, such as Caching, where tracks are buffered in fast memory, reducing access times and increasing throughput. All these benefits make IDE drives far more attractive than conventional ST506 drives or SCSI.

Watford's advanced interface allows IDE drives to work on any Archimedes machine, speeds in excess of SCSI devices can be obtained at a fraction of the cost of a SCSI drive.

Up to four drives are supported by the IDE filing system IDEFS, up to two drives can be attached to each expansion card, up to four cards can be installed in a machine. An optional 20Mb or 40Mb hard disc can be supplied on the podule expansion card itself, with its fast transfer rate and power saving modes the drive is ideal for storing commonly used software such as the !Fonts application.

A powerful security feature has been provided with the two unique commands *IDELock and *IDEUnlock, ideal for educational establishments where hacking or tempering may be prevalent that may lead to loss of data. Once locked, the configuration can not be changed until a secret password is used. The !IDEForm Write Protect option is particularly useful in conjunction with *IDELock as it will prevent any unauthorised deletion of data.

By an innovative use of on-board memory, the card will remember its configuration, even if moved to another slot or even a different machine, this also includes the unique security features.

Hardware

- Single width EuroCard
- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Built in Non Volatile RAM to hold configuration
- LED activity indicator
- 37 way D type socket for external drives
- Optional on-card 20Mb or 40Mb hard disc
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software

- Conforms fully to the Acorn IDE Specification
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Up to four drives over multiple cards
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs

*Commands

*IDELock
*IDEUnlock
! DEFS
Selects the IDE filing system 'IDEFS'.
*IDEDrives
Displays the configuration and native characteristics of installed drives.
*Configure IDEFSDirCache
*Configure IDEFSBuffers
*Configure IDEFSDrive

Typical transfer speeds

Prairie Tek	20Mb	650K bytes per second
Seagate	43Mb	800K bytes per second

Prices

Part No.	Capacity	Access Speed	Price
ADA 0520	44Mb	28mS	£249
ADA 0530	100Mb	16mS	£395
ADA 0570	200Mb	15mS	£535
ADA 0580	330Mb	15mS	£POA

All the above 3.5" hard drives are supplied complete with Controller Card, cable & Software on ROM. (Internal fitting). For use with A300/A400/A500 series machines.

For A3000 users an additional external Case and PSU will be required.

AAA 0300 External Case & PSU for A3000 £85

Internal Hard Disc Drives for A3000

ADA 0700	21Mb	23mS		★£275
ADA 0720	44Mb	28mS	Available Soon	£TBA
ADA 0730	89Mb	18mS		£TBA

Supplied complete with Podule, Fan, Cable & Fitting instructions.

★ Tentative Launch Price

Archi IDE Hard Cards

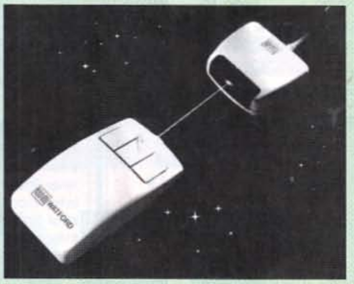
"Simply plug and play"

Watford's NEW low cost, high performance revolutionary IDE Hard Cards for the A300 and A400 series Archimedes are unbelievably easy to install – you simply slot one into any vacant podule backplane slot in the rear of your computer. These stunningly engineered, light weight but fast, 2.5" miniature hard drives are mounted onto the professionally designed cards, and are supplied with the fully Acorn-conformant IDE Filing System ready installed and ready to run. A novel feature of the hard cards is that they can be easily removed and transported to another Archimedes, for example to make a hard disc backup, or to transfer saved files from work to home etc. Security of files on the hard disc is ensured by our unique security password lock, which allows files to be read only, but not overwritten or deleted – ideal for use in school applications where the integrity of your master software needs to be retained.

ADA 0650	21Mb	23mS	**£345**
ADA 0660	44Mb	28mS	**£495**
ADA 0670	89Mb	18mS	**£TBA**

(Can be used as a Removable Hard Drive)

NEW Archimedes Cordless Mouse



Ever found that using a mouse on a busy desktop has its problems? The cable is always being caught up in papers, tangled round equipment and other cables etc, and what about that cup of coffee spilled over your work!

Watford Electronics' new Cordless Mouse solves these problems by removing the cause for concern - replacing the cable with a simple infra red link. It still provides all the speed and easy control of a conventional mouse, but with complete freedom. In use, there are no operating differences between the standard mouse and the new cordless mouse so all mouse functions and mouse driven RISC software will be fully compatible. Pinpoint accuracy is ensured by a unique Accelerator button, which, when pressed, moves the pointer by just a tiny amount for a large slow movement of the mouse, but by a large amount for a quick wizz of the mouse.

Features

- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 seconds inactive
- Auto Power Shut-Down after 20 seconds inactive

Price £59

Watford Electronics are:

- Acorn Qualified Dealer & Econet Referral Centre
- ARIES PC Dealer/Distributor
- Canon Authorised Printer Dealer
- Cambridge Computer Dealer
- Citizen Printers Special Dealer
- Computer Concept Premier Dealer
- EIZO Monitor Dealer
- Microvitec Appointed Dealer
- NEC Appointed Dealer
- Panasonic Premier Dealer
- Roland Plotter Official Dealer
- Star Printer Premier Dealer
- Taxan Appointed Monitor Dealer
- 3M Media Premier Distributor

Watford Electronics

250 Lower High Street, Watford WD1 2AN, England
Tel: 0923 237774/240588 Fax: (0923) 233642 Telex: 8956095

Acorn

Prices subject to change without notice and available on request. ALL OFFERS subject to availability. Mail Order and RETAIL SHOP. Trade and Export inquiries welcome. Government and Educational Establishments' OFFICIAL ORDERS Accepted. Shop Hours: 9.00am to 6.00pm, Monday to Saturday. Thursdays 9am to 8pm. (Free Customer's Car Park). VAT: UK customers please add 17.5% VAT to cost incl. Carriage. CARRIAGE: Unless stated otherwise, minimum £3 on all orders. £4 on Larger items. On bulkier items, £7 Securicor charge applies (UK mainland only). Overseas orders, carriage is charged at cost. Specifications of all products are given in good faith but are subject to change without notice. Some items vary in their availability. Watford Electronics Terms and Conditions are available upon request. Please ring for latest delivery situation.

Archimedes

	BASIC	COLOUR
A3000	*see below...*	*see below...see below*
A410/1	£809.10	£1016.10
A420/1	*see below...*	*see below...see below*
A5000	£999.00	£1499.00
A540	£2245.50	£2452.50

TELEPHONE SUPER SPECIAL

A3000 Basic Model
SUPER Price £CALL#
OR !
A3000 Stereo Colour Model
SUPER Price £CALL#
OR1
A420/1 Stereo Colour Model
SUPER Price £CALL#

WE ARE OPEN ALL DAY SATURDAY
WHY NOT VISIT OUR SHOWROOM !
WE WILL TRY TO BETTER ANY OTHER
DEALER PRICE ... PLEASE TELEPHONE

The Learning Curve

A3000 Model
Basic £629.10 Colour £853.20
A420/1 Model
Basic £1169.10 Colour £1367.10

OUR PRICES DO NOT INCLUDE V.A.T.

Master 128	£359.10
Cambridge Z88 Lap Top	£189.95
Panasonic KX P1081	£146.95
Citizen Swift 9	£157.00
Citizen Swift 24	£260.83
Citizen Swift colour upgrade	£34.20
Star LC10	£155.40
Star LC10 Colour	£294.35
Philips 8833 Colour	£195.00#
Philips 7522 Amber Screen	£69.52
Philips 8832 Colour	£199.67
Ahkter 40/80 400K Sgle no PSU	£99.00
Ahkter 40/80 800K Dual no PSU	£199.00
Ahkter 40/80 400K Sgle & PSU	£114.53
Ahkter 40/80 800K Dual & PSU	£221.70

OAK COMPUTERS

20 Mb Ext HDisc (B & Master)	£517.75
SCSI 20Mb Add HDisc A3/410	£413.25
SCSI 20Mb Ext HDisc A3000	£508.25
SCSI 45Mb Add HDisc A3/410	£527.25
SCSI 45Mb Ext HDisc A3000	£622.25
SCSI Card for A3000	£189.05
SCSI Card for A3/410	£189.05

WE ARE LICENSED CREDIT BROKERS AND CAN OFFER FINANCE ON COMPUTERS AND SOFTWARE. WE OPERTATE THE ACORN TEACHER AND ACADEMIC SCHEMES FOR TRAINING AND FINANCE. PLEASE

FAX

0457 865953

0457 869917

COMPUTECK Ltd.

Dinting Lane Industrial Estate
Glossop
Derbyshire SK13 9NU
Visa-Master-Lombard Cards
0457 869917

ACORNSOFT

Desk Top Publisher (A)	£119.20
Lisp (BMC)	£16.10
Logistix (A)	£89.10
Micros in Business (BMC)	£34.75
Twin (A)	£26.10
View 3.0 (B)	£41.60
View Index (BMC)	£10.40
View Plot (BMC)	£20.83
View Professional (BMC)	£55.51
View Sheet (BMC)	£41.60

COMPUTER CONCEPTS

Inter-Base (BMC)	£48.00
Inter-Chart (BMC)	£25.60
Inter-Sheet (BMC)	£39.20
Inter-Word (BMC)	£39.20
Inter-Sheet (A)	£23.20
Inter-Word (A)	£23.20
Laser Direct Laser Printer	£949.05
Spell Master (BMC)	£41.03
Impression II (A)	£152.09
Impression Junior (A)	£80.95

CLARES MICRO SUPPLIES

Alpha Base (A)	£39.09
Artisan 2 (A)	£46.91
Toolkit (A)	£39.09
Interdictor 2 (A)	£27.35
Knowledge Organiser (A)	£46.91
Fontwise package (BMC)	£23.47

IMPACT SOFTWARE

The Real McCoy (A) Discs	£23.44
Man at Arms (A)	£15.62
Holed Out (A)	£15.62
Apocalypse (A)	£23.44
Nevyron (A)	£15.62
The Olympics (A)	£15.62

PRES

Adv. Control Panel (BMC)	£27.90
Adv. Disc Investigator (BMC)	£23.52
Adv. Disc Toolkit (BMC)	£27.90
Adv. File Manager (BMC)	£22.51

PRES Archi products all discounted !!

MINERVA SYSTEMS

System Delta+Card Index (BM)	£50.83
System Delta Plus (A)	£62.56
Atelier (A)	£78.22

DABS PRESS

Master Guide Book	£11.66
Viewstore/Sheet Book	£11.66
Archimedes DFS Disc	£23.44
"C" A Dabhand Guide	£13.45
Z88 A Dabhand Guide	£13.45
Archimedes Beginers Guide	£8.95

Winter Clearance

Goupil Golf Laptop/Desk PC 1meg 286 40meg H/disc VGA ..... Retail £3500.00
SAVE £2,700.00....... ***SALE Price £800.00***

Amstrad PC2086HD 12" VGA colour 30meg H/disc .... Retail £899.00
SAVE £200.00 .... ***SALE Price £699.00***

Amstrad PC2086SD Mono monitor 3.5" Floppy Drive .... Retail £499.00
SAVE £50.00 .... ***SALE Price £449.00***

Western Digital 30meg H/Card £249.00
SAVE £50.00 ...... ***SALE Price £199.00***

This advert contains just a few of the items we have Please telephone or send a SAE for our FULL price lists

PRICES MARKED # ARE CHEQUE or CASH ONLY NO CREDIT CARDS

We specialise in "Trading in" and buying Used Hardware & Software

Post and Packing Charges
£1.00 for small, £2.45 for medium items. Expensive products £9.00 for courier

USED STOCK SELECTION from COMPUTECK Ltd.

COMPUTERS & HARDWARE

Acorn	BBC B 1770 DFS Series 3	170.00
Acorn	BBC B 1770 DFS Series 4	170.00
Acorn	BBC B 1770 DFS Series 7	200.00
Acorn	BBC B 8271 DFS Series 3	170.00
Acorn	BBC B 8271 DFS Series 4	170.00
Acorn	BBC B 8271 DFS Series 7	200.00
Acorn	BBC B+ 128 Computer	220.00
Acorn	Master 128	250.00
Acorn	Master 512 Board	149.00
Acorn	Master Turbo Board	70.00
Misc.	Z80 Second Processor	90.00
Misc.	Quadram Multiscan 14	225.00
Misc.	Zenith Amber Screen	40.00
Misc.	Brother HR40 Daisy Wide Carr.	346.96
Cumana	S/Drive 40/80 5.25	80.00
Misc.	Dual Drive 80T no PSU	120.87
Misc.	Midwich 20meg Hard Drive (BM)	180.00
Misc.	Single Drive 40/80 inc PSU	70.00
PRES	Hard Disc 20 meg A3000	295.00
A M S	AMX Mouse	20.00
A M S	Mouse (C)	20.00
Acorn	Data Recorder ALF03	15.00
Acorn	Master Econet Module	30.00
Acorn	Master ROM Cartridge	8.00
Acorn	Prestel Adaptor (BM)	40.00
Beebug	Serial Link to BBC (A) Disc	12.00
Misc.	8K SRAM Module	12.00
Misc.	Atari Trackerball (BM)	25.00
Misc.	Chroma 250 Genlock Wid/Vision	295.00
Misc.	Grafpad	60.00
Misc.	Marconi Tracker Ball (BM)	25.00
Misc.	Printer Sharer 6 Comps to 1 Pr	160.00
Misc.	Prism Modem 2000 in Software	60.00
Misc.	Terrel printer Sharer Box	23.00
Misc.	Timer Kit	8.00
Misc.	Timewarp RTC Technomatic (B)	13.87
Morley	3.5 Second Drive A3000	95.00
Morley	Care dual 2 x 16K cartridge	8.00
Nidd Vall	Anamouse (BM)	20.00
Nidd Vall	Digimouse	20.00
PRES	System Housing A3000	49.00
Viglen	Cartridge System for BBC B	13.00
Viglen	Cartridges for ROMs	3.00
Vine	Replay 8271 BBC B	27.00
Watford	16K Disc RAM Board (B)	20.00
Watford	Beeb Video Digitiser	60.00
Watford	Quest Mouse	20.00

BOOKS

Acorn	Ref Manual Part 2 (M)	10.00
Acornsoft	View Ref Manual	6.00
BBC Pubs	Toolbox 2 and tape	5.00
Dabs Pres	Master 512 Guide and Disc	8.00
Misc.	30 Basic Spectrum	3.00
Misc.	Advnd Basic ROM UGuide/C Pharo	8.00
Misc.	Assembly Lang Prog I Birnbaum	4.00
Misc.	Beyond Basic / R Freeman	4.00
Misc.	Brain Teasers for BBC	3.00
Misc.	Creative Graphics John Cownie	4.00
Misc.	Data Processing/Hardwr & Progm	0.00
Misc.	Exploring Adventures / Gerrard	4.00
Misc.	Exploring Forth / Bishop	4.00
Misc.	Graphics on the BBC	4.00
Misc.	Pascal Prgramming Huggins	3.00
Misc.	Proc and Functons BBC	3.00
Misc.	Progmng with Graphics/Marshall	3.00
Misc.	Writing Adventure Games	3.00
Misc.	Writing Educ Progs BBC & Elect	5.00

SERIOUS SOFTWARE

A M S	AMX Super Art (M) Disc	25.00
A M S	Extra! Extra! (BM) Disc	12.00
A M S	Max (B) ROM	10.00
A M S	Stop Press Discs (M)	25.00
A M S	Super Art (C) Disc	25.00
A M S	Utilities (BM) Disc	7.00
Acorn	PC Emulator (A) Discs	60.00
Acornsoft	Basic Editor (BMC) ROM	15.00
Acornsoft	BCPL ROM (B)	31.31
Acornsoft	GXR Rom (B) ROM/Tape	16.00
Acornsoft	Hi - View (B) Disc	22.00
Acornsoft	ISO Pascal (BM) ROMs	60.00
Acornsoft	Logistix (A) Disc	60.00
Acornsoft	Printer Driver Gen. (BM) Disc	6.00
Acornsoft	View Spell (BM) ROM & Disc	21.74
Acornsoft	View Store (BMC) ROM	30.00
Acornsoft	Workshop (B) Disc	6.00
BBC Pubs	Drawing (B) Tape	3.39
BBC Pubs	VU-Type (B) Tape	6.00
Beebug	C Stand Alone Gerator	12.00
Beebug	Design (B) Disc	10.00
Beebug	Exmon II (B) ROM	15.00
Beebug	Hershey Chars (B) Disc	6.00
Beebug	Icon Master (BM) ROM	15.00
Beebug	Masterfile II (B) Disc	12.00
Beebug	Masterfile II (C) Disc	12.00
Beebug	Murom (B) ROM	15.00
Beebug	Paintbox (B) Disc	8.00
Beebug	Printwise (BM) Disc	15.00
Beebug	Quickcalc (B) Disc	8.00
Beebug	Quickcalc (C) Disc	8.00
Beebug	Sleuth (B) ROM	18.00
Beebug	Sprites Utils (B) Disc	6.00
Beebug	Teletext (B) Tape	3.50
Beebug	Teletext Pack (B) Disc	7.00
Beebug	Toolkit (B) ROM	12.00
Beebug	Toolkit Plus (B) ROM	18.00
Beebug	Vocab Tester (B) Tape	8.00
Beebug	Wordease (B) ROMs	12.00
Clares	Artroom (C) Disc	15.00
Clares	Artroom (M) Disc	15.00
Clares	Artroom (M) Disc	12.00
Clares	Beta Base Utils (B) Disc	6.00
Clares	Render Bender (A) Disc	39.00
Comp Con	Disc Doctor (B) ROM	15.00
Comp Con	Graphics (BM) ROM	15.00
Comp Con	Gremlin (B) ROM	15.00
Comp Con	Inter-Sheet (BMC) ROM	30.00
Comp Con	Printmaster (BMC) ROM	15.00
Dabs Pres	C Program Disc	4.00
Dabs Pres	Hyperdriver (C) Disc	12.00
Incentive	Graphic Adv Creator (B) Tape	10.00
Minerva	Gamma Plot (A) Disc	40.00
Minerva	Inter/View Link (C) Disc	10.00
Minerva	Mail Shot Application (C) Disc	10.00
Minerva	Sales Ledger (BM) Disc	26.04
Minerva	Stock Management (C) Disc	26.04
Mirror	Admin Extra (B) Disc	7.00
Mirror	Fleet Street Editor (B) Disc	25.00
Mirror	Fleet Street Editor (C) Disc	25.00
Mirror	Fonts & Graphics (B) Disc	10.00
Mirror	Psychic Powers PSI-Q (B) Disc	6.00
Mirror	Strike Force Harrier (B) Disc	6.00
Misc.	1st Word Study Guide (A) Disc	10.00
Misc.	3D Logo (C) Disc	12.00
Misc.	ADE+ (M) 2xROM	30.00
Misc.	AIDS II by Soft Smith	8.65
Misc.	Archway (A) Disc	60.00
Misc.	Bert Boot Maths 8-12 (C) Disc	10.00
Misc.	Busicalc (BM) Disc/Supersoft	8.65
Misc.	Control Logo (C) Disc	12.00
Misc.	Creation Discs (A) EMR 6xDiscs	26.04
Misc.	Diagram (B) Disc Pineapple	21.70
Misc.	Gemini Combo Pack (B) Disc	12.00
Misc.	Graph Builder (BM) Disc	10.00
Misc.	Graphics Pack (B) Tape Salaman	3.00
Misc.	Icon Art Master (BM) Disc	12.00
Misc.	Insant Recall D/base (B) tape	6.00
Misc.	Invoicing (B) Disc	10.00
Misc.	Logo Extension (C) Disc	7.78
Misc.	Maths Age 4-14 (C) Disc	15.00
Misc.	McVid Graphics (BE) Disc	6.00
Misc.	Merlin Database/Scribe (B) ROM	17.34
Misc.	Micro Maths GCSE (C) Disc	15.00
Misc.	Music Collection (B) Disc	8.00
Misc.	Music Logo (C) Disc	12.00
Misc.	Pixel Perfect Maths Pack (B)	10.00
Misc.	Record Keeper (B) Tape	4.00
Misc.	Science & Technology (B) Disc	12.00
Misc.	ScreenPrint (B) ROM	10.00
Misc.	Share Anal -Synergy (B) Disc	26.04
Misc.	Slave + ROM (B)	20.00
Misc.	Space Mission Nada (C) Disc	10.00
Misc.	Spanish level 8 (BM) Disc	10.00
Misc.	Spy (B) ROM	12.00
Misc.	U Connect (A) Disc	15.00
Misc.	Visifax-Viewdata (B) ROM	20.00
Misc.	Vu-Calc (Psion) (B) Tape	8.00
Misc.	VU-File (B) Tape	10.00
Misc.	Welcome FORTH (B) ROM HCCS	18.00
Misc.	Wizards Adventr (C) Disc	10.00
Misc.	Xmas Carols (A) EMR Disc	4.30
Misc.	ZOOM Mach. Code Monitor (B)	10.00
Nidd Vall	Chauffeur (B)	8.00
Nidd Vall	Illustrator DTP (BM) Disc	15.00
Nidd Vall	Illustrator Paintbox (C) Disc	10.00
P M S	Genie Junior (M) Disc	12.00
P M S	The Publisher (C) ROM + fonts	29.95
Pace	Micronet Terminal (B) ROM	8.00
PRES	Advnc'd 1770 DFS (B) ROM	20.00
Superior	Speech! (C) Disc	8.00
Watford	Beebmon (B) ROM	20.00
Watford	Colour Art (B) Disc	6.00
Watford	ConQuest	18.00
Watford	Daignostic Disc (B) Disc	10.00
Watford	Disassembler ROM (B) ROM	15.00
Watford	Dumpout 3	12.00
Watford	NLQ Designer (BM) ROM	12.00
Watford	Office Mate (B) Disc	6.00
Watford	Quest Paint (BM) ROM	20.00
Watford	View Printer Driver ROM	25.00
Watford	Wapping Art Disc (BM) Disc	9.00
Watford	Wapping Fonts 1&2 (BM) Disc	12.00

GAMES

Acornsoft	Hits Vol 1 (C) Disc	7.00
Acornsoft	Hits Vol 2 (C) Disc	7.00
Acornsoft	Me & My Micro (E) Tape 8 Games	1.50
Acornsoft	Revs (BM) Disc	8.00
Acornsoft	Rocket Raid (B) Tape	2.00
Audiogc	Graham Gooch TC (BM) Disc	4.00
Bug Byte	Compilation II (B) Disc	6.00
Clares	Interdictor 2 (A) Disc	20.00
Domark	Licence to Kill (B) Disc	6.00
Domark	Not a Penny More (B) Disc/Book	6.00
Firebird	Cholo (B) Disc	6.00
Impact	Chocks Away (A) Disc	15.00
Impact	Clogger (C) Disc	5.00
Impact	Holed Out (C) Disc	8.00
Impact	Nevryon (BM) Disc	7.00
Impact	Olympics (A) Disc	10.00
Impact	Zenon (BM) Disc	3.00
Impact	Zenon (C) Disc	5.00
Incentive	Moon Cresta (B) Disc	6.00
Mandarin	Lancelot (BM) Disc	6.00
Micro Pow	Dr Who & Mines (MB+) Disc	6.00
Micro Pow	Killer Gorilla (B) Disc	6.00
Misc.	Home Entertainment (B) Disc	6.00
Misc.	Jump Jet (B) Disc	6.00
Misc.	Kourtyard (B) Disc	4.00
Misc.	Skirmish (C) Disc	6.00
Misc.	Sport Spectacular (B) Disc	6.00
Superior	Around World (BM) Disc	4.00
Superior	Collection Vol 1 (C) Disc	6.00
Superior	Collection Vol 2 (C) Disc	6.00
Superior	Conqueror (A) Disc	14.00
Superior	Edie (C) Disc	9.00
Superior	Grand Prix (C) Disc	6.00
Superior	Grand Prix Con Set (BM) Disc	4.00
Superior	Hostages (C) Disc	7.00
Superior	Last Ninja (BM) Disc	6.00
Superior	Palace of Magic (C) Disc	7.00
Superior	Perplexity (C) Disc	7.00
Superior	Play it Again Sam (C) Disc	7.00
Superior	Predator (BM) Disc	6.00
Superior	Quest (BM) Disc	4.00
Superior	Ravenskull (BM) Disc	4.00
Superior	Repton Thru Time (C) Disc	7.00
Superior	Sam 11 (C) Disc	7.00
Superior	Sam 13 (C) Disc	7.00
Superior	Sam 14 (C) Disc	7.00
Superior	Sam 2 (C) Disc	7.00
Superior	Sam 3 (C) Disc	7.00
Superior	Sam 4 (C) Disc	7.00
Superior	Sam 6 (C) Disc	7.00
Superior	Sam 7 (C) Disc	7.00
Superior	Sam 8 (C) Disc	7.00
Superior	Sam 9 (C) Disc	7.00
Superior	Spycat (BM) Disc	6.00
Superior	Strykers Run (BM) Disc	4.00
Superior	Superior Soccer (C) Disc	7.00
Tynesoft	Phantom (B) Disc	6.00
Tynesoft	Summer Olympiad (B) Disc	6.00
Tynesoft	The Big K.O. (B) Disc	4.00

USED
BBC B, B+, MASTER & ARCHIMEDES HARDWARE PLUS SOFTWARE IS NOW REQUIRED PLEASE WRITE IN FOR A QUOTE TO TURN YOUR OLD OR UNWANTED GOODS INTO CASH ONCE AGAIN

(B) BBC B (M) Master 128 (C) Compact (A) Archimedes

Pull down the shutters

Guard your private data from prying eyes and prolong monitor life, courtesy of Steven Flintham

TVs and monitors can suffer very badly from burn-in, where a fixed pattern is on screen for a long time and gets burnt into the phosphor. Various commercial, PD and type-in programs exist for Archimedes sufferers, so here's one for the 8-bit BBC Micro.

The program will blank the screen display if no key is pressed within a specified period. This prevents burn-in patterns appearing on the TV or monitor, thus prolonging its life. The routine also allows you to blank the screen with a keypress so you can remove confidential information from the screen if someone walks into the room.

When the program is run you will be prompted for the blanking delay time. The number of minutes the program will wait for a key to be pressed before blanking the screen. When this has been entered, the program assembles some machine code and gives brief instructions for use. The routine will remain in place until the computer is turned off.

Once the program is active, the screen will blank itself automatically if no key is pressed within the specified time limit. If this happens, pressing any key will restore the display.

To blank the screen manually, press Control+@ together – the same keys must be pressed again to restore the screen. The key used to perform manual blanking can be altered by changing the value of *key%* in line 250. For example, setting it to 13 would cause Return to blank the screen.

The assembled machine code can be saved by following the on screen prompts. It can then be called up by using *RUN at any time. The address at which the code is assembled can be changed by altering the value of *code%* in line 210. The program was written to work with Wordwise, but I have tested it on the View wordprocessor, and it worked perfectly with one small modification. Line 250 should be changed to read:

```
key%=3
```

This sets Control+C to blank the screen – Control+@ seems to generate Tab characters in View.

The routine also works with some other programs, particularly those written in Basic although it won't work with most commercial games.

How it works

The program claims the event vector and traps events two and five – key pressed and interval timer crossing zero. When a key is pressed, the interval timer is set to cross zero after the specified time has passed.

If no key is pressed before the timer reaches zero, event five is generated which causes the routine to blank the screen and set a flag indicating it's done it. The next time a key is pressed, this flag is checked and the screen restored.

The manual blanking operates in a similar manner, but the screen is blanked when the key press routine detects the required key and restored only when this routine detects the same key again.

The actual blanking is carried out by adjusting register one in the 6845 video controller. This holds the number of characters per screen line. Setting it to zero makes the screen appear blank. Resetting it to its original value restores the display.

MAIN ROUTINE

set_up%	**Enables interrupts, sets the interval timer and makes the routine re-initialise itself on Break.**
blank%	**Called whenever an interrupt occurs. It either calls *key_pressed%* or *time_out%*, depending on which interrupt has occurred.**
key_pressed%	**Called whenever a key is pressed. It re-seeds the interval timer and calls the screen restoration routine if necessary.**
exit%	**Resets all the registers and exits the routine.**
user_blank%	**Called by *key_pressed%* if Control+@ has been pressed. It calls the appropriate routine to blank or restore the screen.**
set_timer%	**Sets the interval timer so that it crosses zero after the specified period of time.**
restore_screen%	**Restores the screen.**
time_out%	**Calls the routine to blank the screen whenever the interval timer crosses zero.**
blank_screen%	**Blanks the screen.**
bleep%	**Gives a quiet bleep when the screen is blanked automatically.**

MAIN VARIABLES

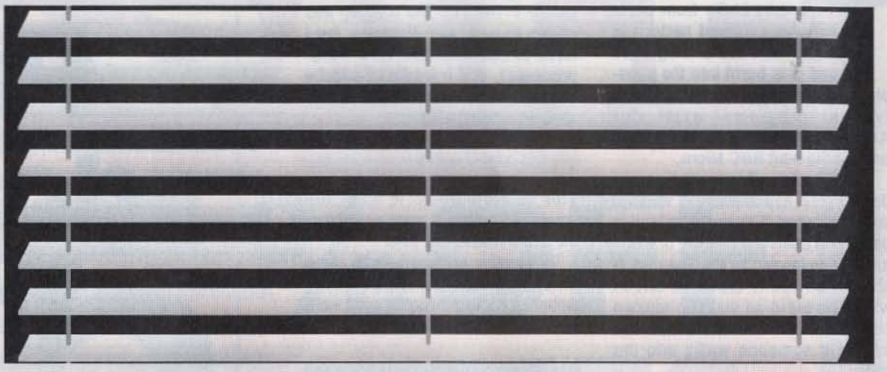
int_vec%	**Address of the interrupt vector.**
old_vec%	**Old interrupt vector contents.**
code%	**Address at which the code is assembled.**
key%	**Ascii code of the key to manually blank the screen.**
blank_flag%	**Flag to show whether the screen is blanked or not.**
delay	**Number of minutes allowed without a keypress before the screen is blanked.**
wait%	**As *delay%*, but in 1/100ths of a second.**
wait_lsb%	**Least significant value used to re-seed interval timer.**
wait-msbs%	**Most significant value for above.**

```
   10 REM Screen Blanker
   20 REM by Steven Flintham
   30 REM (c) The Micro User
   40 MODE 7
   50 VDU 23;8202;0;0;0;
   60 PROCtitle
   70 PROCinitialise
   80 PROCtime_limit
   90 PROCassemble
  100 PROCinstructions
  110 END
  120 :
  130 DEF PROCtitle
  140 PRINTTAB(9,0);CHR$(141);CHR$(132);
CHR$(157);CHR$(131);"Screen Blanker";SPC
(2);CHR$(156)
  150 PRINTTAB(9,1);CHR$(141);CHR$(132);
CHR$(157);CHR$(131);"Screen Blanker";SPC
(2);CHR$(156)
  160 PRINTTAB(0,2);CHR$131;"by Steven F
lintham";SPC(2);"(c) The Micro User"
  170 ENDPROC
  180 :
  190 DEF PROCinitialise
  200 int_vec%=&220
  210 code%=&900
  220 osword%=&FFF1
  230 osbyte%=&FFF4
  240 oswrch%=&FFEE
  250 key%=0
  260 ENDPROC
  270 :
  280 DEF PROCtime_limit
  290 LOCAL wait%,wait$
  300 PRINT'"What is the blanking delay
time in"'"minutes?";CHR$(131);
  310 INPUT ""delay
  320 wait%=delay*6000
  330 wait$="FF"+STR$~(0-wait%)
  340 wait_lsb%=EVAL("&"+RIGHT$(wait$,2)
)
  350 wait_msbs%=EVAL("&"+LEFT$(wait$,8)
)
  360 ENDPROC
  370 :
  380 DEF PROCassemble
```

➤

➤

```
390 FOR opt%=0 TO 2 STEP 2
400 P%=code%
410 [OPT opt%
420 .set_up%
430 LDA int_vec%:CMP #blank% MOD 256
440 BEQ exit_set_up%
450 STA old_vec%
460 LDA int_vec%+1:CMP #blank% DIV 256
470 BEQ exit_set_up%
480 STA old_vec%+1
490 LDA #blank% MOD 256:STA int_vec%
500 LDA #blank% DIV 256:STA int_vec%+1
510 LDA #247:LDX #76:LDY #0:JSR osbyte
%
520 LDA #248:LDX #set_up% MOD 256
530 LDY #0:STY blank_flag%:JSR osbyte%
540 LDA #249:LDX #set_up% DIV 256
550 LDY #0:JSR osbyte%
560 .exit_set_up%
570 LDA #14:LDX #2:JSR osbyte%
580 LDX #5:JSR osbyte%
590 JMP set_timer%
600 .blank%
610 PHP:PHA
620 CMP #2:BEQ key_pressed%
630 CMP #5:BEQ time_out%
640 PLA:PLP
650 JMP (old_vec%)
660 .key_pressed%
670 TXA:PHA:TYA:PHA
680 CPY #key%:BEQ user_blank%
690 JSR set_timer%
700 LDA blank_flag%
710 CMP #128:BEQ screen_blanked%
720 .exit%
730 PLA:TAY:PLA:TAX:PLA:PLP
740 JMP (old_vec%)
750 .user_blank%
760 LDA blank_flag%:BEQ do_user_blank%
770 CMP #128:BEQ do_user_blank%
780 CMP #127:BNE exit%
790 LDA #0:STA blank_flag%
800 JMP restore_screen%
810 .do_user_blank%
820 LDA #127
830 JSR blank_screen%
840 BEQ exit%
850 .set_timer%
860 LDA #4
870 LDX #time_limit% MOD 256
880 LDY #time_limit% DIV 256
890 JMP osword%
900 .time_limit%
910 OPT FNequb(wait_lsb%)
920 OPT FNequd(wait_msbs%)
930 .screen_blanked%
940 LDA #0:STA blank_flag%
950 JMP restore_screen%
960 .restore_screen%
970 JSR line_len1%
980 LDA #135:JSR osbyte%
990 CPY #4:BMI length_80%
1000 LDA #40:BNE length_set%
1010 .length_80%
1020 LDA #80
1030 .length_set%
1040 JSR oswrch%
1050 JSR line_len2%
1060 JMP exit%
1070 .time_out%
1080 TXA:PHA:TYA:PHA
1090 JSR bleep%
1100 LDA blank_flag%:CMP #127:BEQ exit%
1110 LDA #128
1120 JSR blank_screen%
1130 JMP exit%
1140 .blank_screen%
1150 STA blank_flag%
1160 JSR line_len1%
1170 LDA #0:JSR oswrch%
1180 JMP line_len2%
1190 .line_len1%
1200 LDA #23:JSR oswrch%
1210 LDA #0:JSR oswrch%
1220 LDA #1:JMP oswrch%
1230 .line_len2%
1240 LDX #6
1250 LDA #0
1260 .line_len2_loop%
1270 JSR oswrch%
1280 DEX
1290 BNE line_len2_loop%
1300 RTS
1310 .bleep%
1320 LDA #7
1330 LDX #bleep_data% MOD 256
1340 LDY #bleep_data% DIV 256
1350 JMP osword%
1360 .bleep_data%
1370 OPT FNequw(1)
1380 OPT FNequw(-10)
1390 OPT FNequw(100)
1400 OPT FNequw(5)
1410 .old_vec% OPT FNequw(0)
1420 .blank_flag% OPT FNequb(0)
1430 ]
1440 NEXT
1450 CALL code%
1460 ENDPROC
1470 :
1480 DEF FNequb(byte%)
1490 ?P%=byte%:P%=P%+1
1500 =opt%
1510 :
1520 DEF FNequw(db_byte%)
1530 ?P%=db_byte% MOD 256
1540 P%?1=db_byte% DIV 256
1550 P%=P%+2
1560 =opt%
1570 :
1580 DEF FNequd(word%)
1590 !P%=word%:P%=P%+4
1600 =opt%
1610 :
1620 DEF PROCinstructions
1630 PRINT'"The code has now been assem
bled."
 1640 PRINT'"If no key is pressed for
";
STR$(delay%);" minutes"'"then the
screen
 will blank itself"'"automatically.
Pres
sing any key will"'"restore the dis-
play.
"
 1650 PRINT'"The screen can also be
blan
ked by"'"pressing CTRL @. If this is
don
e, CTRL"'"@ must be pressed again to
res
tore the"'"screen."
 1660 PRINT'"Use *SAVE name
";STR$~(code
%);" ";STR$~(P%);" to save the"'"code."
 1670 ENDPROC
```



TAKE IT EASY!
If you would like to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User*.

Get it right ✓

```
  10 =    0 0  |   430 = 9B90 2  |   850 = 3F16 7  |  1270 = F33C C
  20 =    0 0  |   440 = BD58 0  |   860 = 4211 6  |  1280 = E8A9 6
  30 =    0 0  |   450 = B633 D  |   870 = 7506 3  |  1290 = 9B59 2
  40 = 1092 2  |   460 = 916A 8  |   880 =  436 2  |  1300 = 9843 5
  50 = 6D88 3  |   470 = BD58 B  |   890 = 8B26 8  |  1310 = F343 F
  60 = 5255 9  |   480 = 4EF5 B  |   900 = C93B A  |  1320 = 7272 4
  70 = 30B2 2  |   490 = 3394 3  |   910 = 61EE 6  |  1330 =  294 1
  80 = 10F9 3  |   500 =  4F3 F  |   920 = 4404 0  |  1340 = 73A4 2
  90 = 126A 8  |   510 = 12B5 4  |   930 = CA2D 2  |  1350 = 8B26 0
 100 = ADC2 2  |   520 =  3D7 5  |   940 = 9AF5 A  |  1360 = 10F2 B
 110 = FD2E 6  |   530 = 3D27 C  |   950 = D03D F  |  1370 = F10A 9
 120 = 9719 A  |   540 = 72E7 8  |   960 = 9035 3  |  1380 = 8F33 4
 130 = 5C22 5  |   550 = 5FCF 0  |   970 = BC2D 1  |  1390 = EC96 5
 140 = 4AB6 2  |   560 = 7C46 C  |   980 = 285E B  |  1400 = 3DCE 2
 150 = EFE8 4  |   570 = F0D6 B  |   990 = 65A8 5  |  1410 =  390 E
 160 = ECC1 D  |   580 = B725 4  |  1000 = 376F 7  |  1420 =  163 0
 170 = ED0F 3  |   590 = A12E 9  |  1010 = 8738 C  |  1430 = 8B58 F
 180 = 9719 0  |   600 = 16CA B  |  1020 =  AB8 C  |  1440 = 2C83 0
 190 = EC42 B  |   610 = 5EFB D  |  1030 = 559B A  |  1450 = 68C2 5
 200 = 2AF9 4  |   620 = 60A3 2  |  1040 = F33C 0  |  1460 = ED0F F
 210 = F179 0  |   630 = 340A 6  |  1050 = E97E A  |  1470 = 9719 7
 220 = 839A 4  |   640 = 3885 1  |  1060 = 87F7 4  |  1480 = 12F6 7
 230 = F57E 9  |   650 = 94BC B  |  1070 = D820 9  |  1490 = B60A 1
 240 = 5D1D 8  |   660 = AC0B 1  |  1080 = 86E2 E  |  1500 = C8FA 8
 250 = 3F9F C  |   670 = 86E2 4  |  1090 = 42B1 0  |  1510 = 9719 F
 260 = ED0F D  |   680 =  704 3  |  1100 =  9CE A  |  1520 = FA3B A
 270 = 9719 6  |   690 = 3541 E  |  1110 = 56E2 1  |  1530 = 1834 7
 280 = CC09 6  |   700 = 1617 A  |  1120 = 8205 7  |  1540 = 4C2D 7
 290 = C7CE 0  |   710 = DA30 A  |  1130 = 87F7 0  |  1550 = 650A D
 300 = 6D49 9  |   720 = FD36 0  |  1140 = D2EC E  |  1560 = C8FA A
 310 = E9BF A  |   730 = 9ADF E  |  1150 = C1B8 F  |  1570 = 9719 A
 320 = 2E9D C  |   740 = 94BC 3  |  1160 = BC2D B  |  1580 = 12CE 0
 330 = D7A7 E  |   750 = B86D C  |  1170 = E4FD 7  |  1590 = E957 6
 340 = A35F D  |   760 = C286 C  |  1180 = 7D11 4  |  1600 = C8FA 4
 350 = 8030 9  |   770 = 187A 4  |  1190 = B67A B  |  1610 = 9719 4
 360 = ED0F C  |   780 = 936D E  |  1200 = ACA3 3  |  1620 = 1297 4
 370 = 9719 4  |   790 = 9AF5 8  |  1210 = E4FD 4  |  1630 = CC4A 1
 380 = 98A5 A  |   800 = D03D 1  |  1220 = CA9B 2  |  1640 = 15F9 D
 390 = 5221 D  |   810 = AEAD 4  |  1230 = E329 8  |  1650 = 5E8B 5
 400 =   7B 2  |   820 = A70D D  |  1240 = 8A83 F  |  1660 = 2FD3 B
 410 = 56F6 B  |   830 = 8205 0  |  1250 =  295 1  |  1670 = ED0F 3
 420 = DFB0 B  |   840 =  8B3 C  |  1260 =  676 C  |
```

The Com e Upgrade Solution

£334 + VAT inc installation

ARM3 for A3000

Qualified
Dealer

A3000

- Uses only eight RAM devices
- User upgradeable from 1 to 4 Mb
- Four layer printed circuit board
- Low power consumption
- Available without RAM devices

Bare card - £35 2nd Mb Card - £56 4th Mb Card - £159

A3

- Includes MEMC1a upgrade
- Large capacity OS ROM sockets
- No soldering required
- Four layer printed circuit boards
- Courier collection of your machine

2nd Mb - £225 4th Mb - £299

A400

- 400 series RAM upgrade kits
- Supplied with full fitting instructions
- 410/1 to 420/1 requires 1Mb
- 420/1 to 440/1 requires 2Mb
- 410/1 to 440/1 requires 3Mb

1Mb - £35 2Mb - £64 3Mb - £98

8Mb

- Uses only eight RAM devices
- Suitable for A440, A400/1 & R140
- Fully RISC OS compatible
- Four layer printed circuit boards
- Courier collection of your machine

8 Mb upgrade - £599

ARM3

- New series Aleph One ARM3
- 3 to 4 times performance increase
- Surface mount technology
- Four layer printed circuit board
- Suitable for all Acorn ARM2 based machines

ARM 3 upgrade - £285 ARM 3 for A3000's - £334

VIDC

- Increases resolution with all Multiscan monitors
- Doubles desktop work area
- Custom modes for Taxan and Eizo monitors
- Suitable for all Archimedes computers
- Free with any multiscan monitor from Atomwide

Atomwide VIDC Enhancer - £25

DISC

- Syquest removable disk systems
- Including One cartridge, drive unit and all cables
- 42Mb removable cartridges
- High-flow fan fitted for improved cooling
- Please phone for prices on other SCSI related products

Atomwide Syquest drive unit - £424 42Mb disks - £55

Access

VISA

- All products are cross-compatible
- Combination deals available on all products
- Typical combination A310 4 Mb and ARM3 £559
- Dealer enquires welcome
- Phone for full details on all products

All prices exclude VAT at 17.5% but include delivery

ATOMWIDE

23 The Greenway Orpington Kent BR5 2AY Tel 0689 838852 Fax 0689 896088

PROVOCATOR

The first **true** arcade game for the Archimedes. Unrivalled by competitors for sheer speed, action and fun! **Provocator's** unique control method gives the player complete freedom of movement, never restricted to following a set route.

"Exceptional Quality" – *Games X*

"Shoot 'em up fans...can dry their tears and get out their money because classic arcade action has arrived" – *Archimedes World*

"Really smooth...fast and furious" – *Micro User*

PRICE £19.95 inc VAT

Add £1.00 for postage
Cheques & Postal Orders payable to:
Computer Tutorial Services Ltd

Computer Tutorial Services Ltd, 4 Mill Hill Road, Cowes, Isle of Wight, PO31 7EA. Tel: (0983) 294333. Fax: (0983) 298439

£969!* THE BEST VALUE IN DIRECT DRIVE PAGE PRINTERS

★Rugged CrystalPrint 6 page per minute, 300 dpi engine.
★High speed interface card - an A4 page is transferred in 6 seconds, 5 to 15 times faster than conventional laser printers!

PrinterAL - ArcLaser RISCOS Printer Driver

★Compatible with ALL Archimedes applications, including DTP, 1st Word Plus and PC Emulator, BASIC VDU 2 statement, etc.
★Prints outline font text at any size and halftone graphics at full 300 dpi resolution.
★Productivity features: prints BASIC files, directory catalogues, creates and prints document files and bitmaps (preview), halftone enhancement and much more.
★Prints documents directly to the Econet file/printer server, with no network degradation and at little less than full ArcLaser speed. Share your printing resources!

SpoolerAL - Econet Printer Spooler

New fast ArcLaser printer spooler allows you to utilise ArcLaser to the full! Print from any station to the ArcLaser print server via Econet and our spooler software. Typical multipage document throughput at 35 secs/page. Automatically collates multi-copy documents, document scheduling, printer log facility.

***Education discounts available**

Recommended retail price £969

ARCLASER

Calligraph Ltd
53 Panton St.
Cambridge CB2 1HL
Tel: (0223) 461143 Fax: 316144

VISA
MasterCard

Some Basic help

Do you ever wonder where all your memory disappears to? Find out with the aid of Stephen Wade's utility

WHEN programs become large it is extremely important to keep an eye on how much free space there is, because variables, procedures and functions use up user Ram when the program runs.

Simple? Not really. Although the Electron and BBC Micro support variables such as PAGE, TOP and HIMEM as a means of obtaining a restricted amount of memory status information, they only really provide the bare minimum.

For example, there is no instant way of finding out how much memory has been taken up by variables, or how much space is free for use.

The program listed here assembles a fully-fledged service rom image just over 1k long which will provide the information at any stage of programming or program execution.

When called the rom presents a helpful status report of how much memory has been used, how much is free plus a few other sundries – such as LISTO and WIDTH values

How it works

The Rom image conforms to the standard Acorn format, and offers responses to service calls 3, 9 and 39. The first allows the rom to announce its presence on an Electron, BBC Model B or B+ whenever Break is pressed. Similarly, the last allows this to be done on the Master and Compact.

Call 9 – the remaining one – is used on the 8-bit micros to signal a help call, this being the bare bones on which the program is structured. If no parameter is passed, a standard help acknowledgement text is printed.

When there is a parameter, it is checked to see whether it matches with the word *SystVars* – upper and lower case are not significant. If the result is negative the call is returned without any further action being taken.

If the string does match, osbytes 187 and 252 are used to read the Rom numbers of the current language and the socket containing Basic.

If the two do not match, an error message is displayed and the call is returned, as the variables cannot be listed outside the Basic environment.

At this point if the call has not been terminated the string messages and their variables are printed in turn. The addresses of the strings are tabled so as to make locating them much easier and quicker.

Each of the variables displayed by the utility are listed in the table along with the associated one- or two-byte location address of the variable.

In certain cases a calculation is required to obtain a result which is meaningful – such as for *Program size*. In these situations the hex values listed relate to memory-mapped addresses and all other values refer to absolute numbers.

A small number of zero page locations are used as workspace by the utility but the values they contain are stacked on entry to the rom and replaced on exit. This enables the code to operate as transparently as possible.

How to use it

Type in the listing, ensure you've made no typing mistakes using the checksums, and save it on to your disc or cassette.

When the program is run a rom image will be saved on your cassette or disc under the name *BasHelp*. This can then be either loaded into Sideways Ram if you have it – which all B+128, Master and Compact machines have as standard – or blown into an eprom.

The process for loading the code will depend on the machine and type of sideways ram which you use. For example, if you have a Master 128 or Compact you can use the **SRLOAD* command, other micros may require **RLOAD* or **LOAD* instead. Check your manual for details of which command to use.

Once installed – either in eprom chip form or sideways ram – obtaining the variable details is simple: Just enter **H. SystVars*. As long as Basic is the current language the report will be printed, otherwise a suitable error generated. And that's all there is to it.

● *So there you have it, a simple but useful addition to your array of programming tools and utilities.*

Variable	Low byte address (or calculation)	High byte address (or calculation)
PAGE	(Always zero)	&18
TOP	&13	&12
LOMEM	&01	&00
Heap	&03	&02
Stack	&05	&04
HIMEM	&07	&06
Program size	&13-&18	&13-0
Bytes used	&07-&18-(&05-&03)	&06-0-(&04-&02)
Bytes free	&05-&03	&04-&02
Next location	&03+1	&02+0
LISTO	&1F	–
TRACE	&20	–
WIDTH	&23	–
REPEAT depth	&24	–
GOSUB depth	&25	–
FOR depth	&26	–

The variables listed and their associated addresses/calculations

```
>*H. SystVars
System variables are as follows:

PAGE = &1900
TOP = &34DA Program size = &1BDA
LOMEM = &34DA Bytes used = &1BDA
Heap = &34DA Bytes free = &4726
Stack = &7C00 Next location = &34DB
HIMEM = &7C00
LISTO = &00 REPEAT depth = &00
TRACE OFF GOSUB depth = &00
WIDTH = &FF FOR depth = &00
```

A typical status report provided by the utility

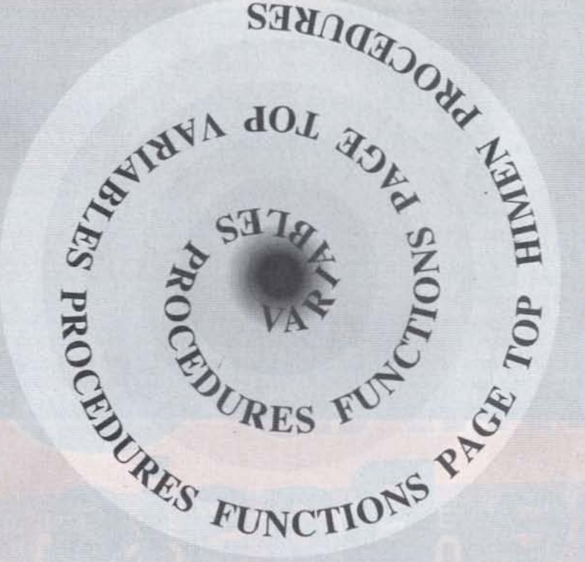
```
 10 REM Basic System Help Utility
 20 REM by Stephen Wade
 30 REM (c) The Micro User
 40 REM For Master/Compact and
 50 REM any Electron/BBC B/BBC B+
 60 REM fitted with sideways Ram
 70 MODE 7
 80 buffer=&A8:hexbuffer=&AA
 90 osnewl=&FFE7:osasci=&FFE3
100 osbyte=&FFF4:oswrch=&FFEE
110 FOR pass=4 TO 7 STEP 3
120 P%=&8000:O%=&5000:[OPT pass
130 \ Standard Rom header data
140 OPT FNequw(0):OPT FNequb(0)
150 JMP srvc:OPT FNequb(&82):OPT FNequ
```

➤

➤

```
b(cpy MOD 256):OPT FNequb(1)
  160 \ Title and version string
  170 .ttl
  180 OPT FNequs("Basic System Help Util
ity"):OPT FNequb(0):OPT FNequs(" 1.05"):
OPT FNequb(0)
  190 \ Copyright string
  200 .cpy
  210 OPT FNequb(0):OPT FNequs("(C) The
Micro User"):OPT FNequb(0)
  220 \ Service entry routine
  230 .srvc
  240 CMP #9:BEQ gh
  250 CMP #3:BEQ prntttl
  260 CMP #39:BEQ prntttl:RTS
  270 \ Print title on Break
  280 .prntttl
  290 PHA:TXA:PHA:TYA:PHA:LDY #0
  300 .lpr
  310 LDA ttl,Y:BEQ tft
  320 JSR osasci:INY:JMP lpr
  330 .tft
  340 JSR osnewl:JSR osnewl
  350 PLA:TAY:PLA:TAX:PLA:TAY:RTS
  360 \ *Help service routine
  370 .gh
  380 PHA:TXA:PHA:TYA:PHA:LDA (&F2),Y
  390 CMP #13:BNE chk:JSR h:LDX #&FF
  400 .dtls
  410 INX:LDA cmmnd,X:BEQ dnt
  420 JSR osasci:BNE dtls
  430 .dnt
  440 JSR osasci:JSR osnewl:JMP rstr
  450 .chk
  460 LDX #&FF:DEY
  470 .gn
  480 INX:INY:LDA (&F2),Y:AND #&DF
  490 CMP com,X:BEQ gn:LDA com,X
  500 CMP #&FE:BEQ main
  510 .rstr
  520 PLA:TAY:PLA:TAX:PLA:RTS
  530 .h
  540 JSR osnewl:LDX #&FF:JSR hlp
  550 JSR hlp:JSR osnewl:RTS
  560 .hlp
  570 INX:LDA ttl,X:BEQ dn
  580 JSR osasci:BNE hlp
  590 .dn
  600 RTS
  610 .main
  620 \ Start of extended help routine
  630 \ Check if Basic first
  640 LDA #187:LDX #0:LDY #&FF
  650 JSR osbyte:STX buffer
  660 LDA #252:LDX #0:LDY #&FF
  670 JSR osbyte:CPX buffer:BNE isnot
  680 JMP main2
  690 .isnot
  700 \ If not, print special message
  710 LDA #notbas MOD 256:STA buffer
  720 LDA #notbas DIV 256:STA buffer+1
  730 JSR prnttxt:JMP tft
  740 .main2
  750 \ Beginning of main routine
  760 \ if all is in order
  770 JSR osnewl
  780 \ Stack zero page workspace
  790 LDA buffer:PHA:LDA buffer+1
  800 PHA:LDA hexbuffer:PHA
  810 LDA hexbuffer+1:PHA
  820 .main3
  830 \ PAGE
  840 LDA htptrs:STA buffer
  850 LDA htptrs+1:STA buffer+1
  860 JSR prnttxt
  870 LDX &18:LDY #0:JSR hxprnt
  880 \ TOP
  890 LDA htptrs+2:STA buffer
  900 LDA htptrs+3:STA buffer+1
  910 JSR prnttxt
  920 LDX &13:LDY &12:JSR hxprnt
  930 \ Program size
  940 LDA htptrs+4:STA buffer
  950 LDA htptrs+5:STA buffer+1
  960 JSR prnttxt
  970 LDA &12:SEC:SBC #0:TAY
  980 LDA &13:SBC &18:TAX:CLC
  990 JSR hxprnt
 1000 \ LOMEM
 1010 LDA htptrs+6:STA buffer
 1020 LDA htptrs+7:STA buffer+1
 1030 JSR prnttxt
 1040 LDX &01:LDY &00:JSR hxprnt
 1050 \ Bytes used
 1060 LDA htptrs+8:STA buffer
 1070 LDA htptrs+9:STA buffer+1
 1080 JSR prnttxt
 1090 LDA &04:SEC:SBC &02:STA buffer
 1100 LDA &05:SBC &03:STA buffer+1
 1110 CLC:LDA &06:SEC:SBC #0
 1120 SBC buffer:TAY:LDA &07:SBC &18
 1130 SBC buffer+1:TAX:CLC
 1140 JSR hxprnt
 1150 \ Heap
 1160 LDA htptrs+10:STA buffer
 1170 LDA htptrs+11:STA buffer+1
 1180 JSR prnttxt
 1190 LDX &03:LDY &02:JSR hxprnt
 1200 \ Bytes free
 1210 LDA htptrs+12:STA buffer
 1220 LDA htptrs+13:STA buffer+1
 1230 JSR prnttxt
 1240 LDA &04:SEC:SBC &02:TAY
 1250 LDA &05:SBC &03:TAX:CLC
 1260 JSR hxprnt
 1270 \ Stack
 1280 LDA htptrs+14:STA buffer
 1290 LDA htptrs+15:STA buffer+1
 1300 JSR prnttxt
 1310 LDX &05:LDY &04:JSR hxprnt
 1320 \ Next location
 1330 LDA htptrs+16:STA buffer
 1340 LDA htptrs+17:STA buffer+1
 1350 JSR prnttxt
 1360 LDA &02:SEC:ADC #0:TAY
 1370 LDA &03:ADC #0:TAX:CLC
 1380 JSR hxprnt
 1390 \ HIMEM
 1400 LDA htptrs+18:STA buffer
 1410 LDA htptrs+19:STA buffer+1
 1420 JSR prnttxt
 1430 LDX &07:LDY &06:JSR hxprnt
 1440 \ LISTO
 1450 LDA htptrs+20:STA buffer
 1460 LDA htptrs+21:STA buffer+1
 1470 JSR prnttxt
 1480 LDA &1F:JSR hxprnt2
 1490 \ REPEAT depth
 1500 LDA htptrs+22:STA buffer
 1510 LDA htptrs+23:STA buffer+1
 1520 JSR prnttxt
 1530 LDA &24:JSR hxprnt2
 1540 \ TRACE
 1550 LDA htptrs+24:STA buffer
 1560 LDA htptrs+25:STA buffer+1
 1570 JSR prnttxt:LDA #79:JSR oswrch
 1580 LDA &20:CMP #0:BEQ off
 1590 LDA #78:JSR oswrch
 1600 LDA #32:JSR oswrch:JMP main4
 1610 .off
 1620 LDA #70:JSR oswrch:JSR oswrch
 1630 .main4
 1640 \ GOSUB depth
 1650 LDA htptrs+26:STA buffer
 1660 LDA htptrs+27:STA buffer+1
 1670 JSR prnttxt
 1680 LDA &25:JSR hxprnt2
 1690 \ WIDTH
 1700 LDA htptrs+28:STA buffer
 1710 LDA htptrs+29:STA buffer+1
 1720 JSR prnttxt
 1730 LDA &23:JSR hxprnt2
 1740 \ FOR depth
 1750 LDA htptrs+30:STA buffer
 1760 LDA htptrs+31:STA buffer+1
 1770 JSR prnttxt
 1780 LDA &26:JSR hxprnt2
 1790 \ Tidy screen with CR's
 1800 JSR osnewl:JSR osnewl
 1810 \ Restore registers and exit
 1820 .lldn
 1830 PLA:STA hexbuffer+1
 1840 PLA:STA hexbuffer
 1850 PLA:STA buffer+1
 1860 PLA:STA buffer
 1870 PLA:TAY:PLA:TAX:PLA:RTS
 1880 \ Text printing routine
 1890 .prnttxt
 1900 LDY #0
 1910 .prnttxt2
 1920 LDA (buffer),Y:CMP #&FF
 1930 BEQ prnttxt3:JSR osasci
 1940 INY:JMP prnttxt2
 1950 .prnttxt3
 1960 RTS
 1970 \ Two-part hex number sorter
 1980 .hxprnt
 1990 STX hexbuffer:STY hexbuffer+1
 2000 LDA hexbuffer:JSR hxprnt2
 2010 LDA hexbuffer+1:JSR hxprnt2:RTS
 2020 \ Hex number printer
 2030 .hxprnt2
 2040 PHA:AND #240
 2050 LSR A:ROR A:ROR A:ROR A
 2060 JSR hxprnt3:PLA:AND #15
 2070 .hxprnt3
 2080 CLC:ADC #48:CMP #58
 2090 BCC hxprnt4:CLC:ADC #7
 2100 .hxprnt4
 2110 JMP oswrch
 2120 \ Message if not Basic language
 2130 .notbas
 2140 OPT FNequs("This language is not B
asic."):OPT FNequb(&FF)
 2150 \ Extended *Help test string
 2160 .com
 2170 OPT FNequs("SYSTVARS")
 2180 OPT FNequb(&FE)
 2190 \ Additional help information
 2200 .cmmnd
 2210 OPT FNequs("  SystVars")
 2220 OPT FNequb(0)
 2230 \ Table of pointers to the
 2240 \ extended help texts
 2250 .htptrs
 2260 OPT FNequw(ht1)
 2270 OPT FNequw(ht2)
 2280 OPT FNequw(ht3)
 2290 OPT FNequw(ht4)
 2300 OPT FNequw(ht5)
 2310 OPT FNequw(ht6)
```

➤


VARIABLES PROCEDURES FUNCTIONS PAGE TOP HIMEN PROCEDURES
VARIABLES TOP PAGE FUNCTIONS PROCEDURES
VARIABLES

TAKE IT EASY!

If you would like to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User.*

➤

```
 2320 OPT FNequw(ht7)
 2330 OPT FNequw(ht8)
 2340 OPT FNequw(ht9)
 2350 OPT FNequw(ht10)
 2360 OPT FNequw(ht11)
 2370 OPT FNequw(ht12)
 2380 OPT FNequw(ht13)
 2390 OPT FNequw(ht14)
 2400 OPT FNequw(ht15)
 2410 OPT FNequw(ht16)
 2420 .ht1
 2430 OPT FNequs("System variables are a
s follows:-")
 2440 OPT FNequb(13):OPT FNequb(13)
 2450 OPT FNequs("PAGE  = &")
 2460 OPT FNequb(&FF)
 2470 .ht2
 2480 OPT FNequb(13)
 2490 OPT FNequs("TOP   = &")
 2500 OPT FNequb(&FF)
 2510 .ht3
 2520 OPT FNspaces(3)
 2530 OPT FNequs("Program size = &")
 2540 OPT FNequb(&FF)
 2550 .ht4
 2560 OPT FNequb(13)
 2570 OPT FNequs("LOMEM = &")
 2580 OPT FNequb(&FF)
 2590 .ht5
 2600 OPT FNspaces(3)
 2610 OPT FNequs("Bytes used = &")
 2620 OPT FNequb(&FF)
 2630 .ht6
 2640 OPT FNequb(13)
 2650 OPT FNequs("Heap  = &")
 2660 OPT FNequb(&FF)
 2670 .ht7
 2680 OPT FNspaces(3)
 2690 OPT FNequs("Bytes free = &")
 2700 OPT FNequb(&FF)
 2710 .ht8
 2720 OPT FNequb(13)
 2730 OPT FNequs("Stack = &")
 2740 OPT FNequb(&FF)
 2750 .ht9
 2760 OPT FNspaces(3)
 2770 OPT FNequs("Next location = &")
 2780 OPT FNequb(&FF)
 2790 .ht10
 2800 OPT FNequb(13)
 2810 OPT FNequs("HIMEM = &")
 2820 OPT FNequb(&FF)
 2830 .ht11
 2840 OPT FNequb(13):OPT FNequb(13)
 2850 OPT FNequs("LISTO = &")
 2860 OPT FNequb(&FF)
 2870 .ht12
 2880 OPT FNspaces(5)
 2890 OPT FNequs("REPEAT depth = &")
 2900 OPT FNequb(&FF)
 2910 .ht13
 2920 OPT FNequb(13)
 2930 OPT FNequs("TRACE ")
 2940 OPT FNequb(&FF)
 2950 .ht14
 2960 OPT FNspaces(7)
 2970 OPT FNequs("GOSUB depth = &")
 2980 OPT FNequb(&FF)
 2990 .ht15
 3000 OPT FNequb(13)
 3010 OPT FNequs("WIDTH = &")
 3020 OPT FNequb(&FF)
 3030 .ht16
 3040 OPT FNspaces(5)
 3050 OPT FNequs("FOR depth = &")
 3060 OPT FNequb(&FF)
 3070 ]:NEXT
 3080 REM Auto-save code
 3090 $&700="SAVE BasHelp 5000 "+STR$~O%
+" 8000 8000"
 3100 X%=0:Y%=7:CALL &FFF7
 3110 PRINT ''"Code saved under the name
 of BasHelp."''"To use, load into Sidewa
ys Ram and type *H. SystVars."'':END
 3120 REM Various subroutines
 3130 DEF FNequb(S%)
 3140 ?P%=S%:P%=P%+1
 3150 ?O%=S%:O%=O%+1:=pass
 3160 DEF FNequw(S%)
 3170 !P%=S%:P%=P%+2
 3180 !O%=S%:O%=O%+2:=pass
 3190 DEF FNequs(S$)
 3200 $P%=S$:P%=P%+LEN(S$)
 3210 $O%=S$:O%=O%+LEN(S$):=pass
 3220 DEF FNspaces(S%)
 3230 FOR N%=1 TO S%
 3240 ?P%=32:P%=P%+1
 3250 ?O%=32:O%=O%+1:NEXT:=pass
```

PROCEDURES FUNCTIONS PAGE TOP HIMEM VARIABLES
PROCEDURES FUNCTIONS PAGE TOP HIMEM VARIABLES
PROCEDURES FUNCTIONS PAGE TOP VARIABLES
PROCEDURES
VARIABLES
VAR

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 =    0 0
  50 =    0 0
  60 =    0 0
  70 = 1092 2
  80 = 81A9 B
  90 = D7CC A
 100 = 2DD3 B
 110 = 1BA2 9
 120 = 94E5 C
 130 =    0 C
 140 = FDE8 6
 150 = C8D4 0
 160 =    0 0
 170 = F86B 6
 180 =  DEA D
 190 =    0 D
 200 = B0C8 F
 210 = 1FD2 3
 220 =    0 3
 230 = 56E7 7
 240 = 6342 4
 250 = 7450 5
 260 = 9399 5
 270 =    0 5
 280 = 9C4B B
 290 = 10AE C
 300 = 2D92 A
 310 = 19B3 D
 320 = D016 D
 330 =  E43 7
 340 = 495D 7
 350 = 1C69 3
 360 =    0 3
 370 = E2D4 9
 380 = 6751 9
 390 = 40D2 5
 400 = 5044 D
 410 = 8868 8
 420 = 90B4 B
 430 = C489 B
 440 = 7CEF 0
 450 =  861 2
 460 = 2E8D 3
 470 = 8212 2
 480 = E43E D
 490 = 7EA8 D
 500 = 8CDF D
 510 = 7311 F
 520 = 4E06 0
 530 = C847 B
 540 = E267 4
 550 = 2BFF 5
 560 = 970E C
 570 = 936E B
 580 = 68D0 7
 590 = D741 5
 600 = 9843 6
 610 = 37C9 7
 620 =    0 7
 630 =    0 7
 640 = D0C7 2
 650 = AA1F B
 660 =   54 4
 670 = 351C 1
 680 = E364 F
 690 = 78CF 5
 700 =    0 5
 710 = CD2E 5
 720 = A989 1
 730 = DCFC 8
 740 = 99A5 C
 750 =    0 C
 760 =    0 C
 770 = 3334 0
 780 =    0 0
 790 = 3B21 4
 800 = 283D 5
 810 = 5C2B 1
 820 = 8984 C
 830 =    0 C
 840 = 740B A
 850 =  FC7 2
 860 =  FE5 5
 870 = 7186 3
 880 =    0 3
 890 = 3438 8
 900 = F905 6
 910 =  FE5 C
 920 = 527F 7
 930 =    0 7
 940 = 3F06 2
 950 = F262 4
 960 =  FE5 5
 970 = E62B 9
 980 = 72EB 0
 990 = 4256 2
1000 =    0 2
1010 = 39EC 3
1020 =  4A0 3
1030 =  FE5 0
1040 = AF66 A
1050 =    0 A
1060 = 297A A
1070 = E4AC 8
1080 =  FE5 C
1090 = DEF5 C
1100 = 8883 E
1110 = 333B 1
1120 = F1C8 0
1130 = AE08 C
1140 = 4256 B
1150 =    0 B
1160 = E2D8 F
1170 = BBAA 1
1180 =  FE5 6
1190 = C2EA 2
1200 =    0 2
1210 = E432 9
1220 = 4D68 5
1230 =  FE5 6
1240 = 4D02 9
1250 = 8B68 3
1260 = 4256 2
1270 =    0 2
1280 = EF0C 3
1290 = 460F 8
1300 =  FE5 D
1310 = 747E A
1320 =    0 A
1330 = E9E6 1
1340 = B0CD 1
1350 =  FE5 D
1360 = E65D 2
1370 = AE59 9
1380 = 4256 F
1390 =    0 F
1400 = F970 9
1410 = 50C1 4
1420 =  FE5 4
1430 = 19F2 6
1440 =    0 6
1450 = 2D7D 9
1460 = 588F 0
1470 =  FE5 5
1480 = EE27 6
1490 =    0 6
1500 = 2B97 F
1510 = AE4D B
1520 =  FE5 2
1530 = 884E 0
1540 =    0 0
1550 = 20A9 8
1560 = A52A 8
1570 = 9826 6
1580 = C826 C
1590 = B47D 6
1600 = AA94 9
1610 = 8FA2 3
1620 =  775 7
1630 = F963 1
1640 =    0 1
1650 = 2643 5
1660 = 53E8 D
1670 =  FE5 7
1680 = CD2D 2
1690 =    0 2
1700 = 36D5 8
1710 = B3E4 4
1720 =  FE5 8
1730 = 4246 3
1740 =    0 3
1750 = 681E 1
1760 = F673 1
1770 =  FE5 8
1780 =  288 9
1790 =    0 9
1800 = 495D 1
1810 =    0 1
1820 = 7570 E
1830 = A0B9 0
1840 = 6C99 7
1850 = 9028 8
1860 = 955D 3
1870 = 4E06 B
1880 =    0 B
1890 = 4A1F 5
1900 = 9CF1 F
1910 = E09F 9
1920 = 119F 9
1930 = 6241 1
1940 = F39F B
1950 = F0BE 8
1960 = 9843 F
1970 =    0 F
1980 = F3A4 E
1990 = 85F8 D
2000 = 1C7A 7
2010 = A4A3 C
2020 =    0 C
2030 = 6D6D 2
2040 = AFAB A
2050 = 52FF 3
2060 = 72AB 8
2070 = 7D4C 3
2080 = D456 B
2090 = 7045 D
2100 =  DAB 8
2110 = 3D0B D
2120 =    0 D
2130 = F480 4
2140 = 362E 1
2150 =    0 1
2160 = F130 0
2170 = E7E9 7
2180 = 629D 8
2190 =    0 8
2200 = FFCC D
2210 = 385C 1
2220 = 65D9 0
2230 =    0 0
2240 =    0 0
2250 = FCD6 5
2260 = 9886 B
2270 = CDD5 0
2280 = FEE4 6
2290 = 6773 B
2300 = 5442 B
2310 =  111 B
2320 = 3220 F
2330 = 221E E
2340 = 112F B
2350 = 8811 3
2360 = BB20 8
2370 = EE73 1
2380 = DD42 6
2390 = 44D5 1
2400 = 77E4 4
2410 = 22B7 3
2420 = 4531 7
2430 = EA24 4
2440 = 1397 7
2450 = 5899 9
2460 = 37CE 7
2470 = 7552 6
2480 = 8BC0 B
2490 = 1779 5
2500 = 37CE D
2510 = 6573 B
2520 = 44DC 0
2530 = FD65 2
2540 = 37CE 4
2550 = 1594 B
2560 = 8BC0 5
2570 = 7111 8
2580 = 37CE 3
2590 =  5B5 A
2600 = 44DC A
2610 = 49FC 4
2620 = 37CE F
2630 = 35D6 8
2640 = 8BC0 A
2650 = C804 6
2660 = 37CE 6
2670 = 25F7 3
2680 = 44DC 6
2690 = 3FE7 A
2700 = 37CE D
2710 = D418 5
2720 = 8BC0 C
2730 = DF9C 4
2740 = 37CE C
2750 = C439 4
2760 = 44DC D
2770 = A671 0
2780 = 37CE D
2790 = 1F32 4
2800 = 8BC0 C
2810 = 53E9 0
2820 = 37CE F
2830 =  F13 1
2840 = 1397 1
2850 = 38A3 7
2860 = 37CE 4
2870 = 3F70 C
2880 = EE7A 2
2890 = E300 0
2900 = 37CE 3
2910 = 2F51 8
2920 = 8BC0 3
2930 =  3C0 E
2940 = 37CE C
2950 = 5FB6 C
2960 = 8818 0
2970 = CDB3 6
2980 = 37CE B
2990 = 4F97 D
3000 = 8BC0 3
3010 = 4CFB 8
3020 = 37CE 0
3030 = 7FF4 9
3040 = EE7A 0
3050 = DA02 B
3060 = 37CE 1
3070 = DA42 E
3080 =    0 E
3090 = 1B4E A
3100 = DEAE 1
3110 =   53 3
3120 =    0 3
3130 = 55E1 6
3140 = 3D4D 3
3150 = A7AA D
3160 = 72EC 4
3170 = 2BD5 4
3180 = 1468 4
3190 = C8DB E
3200 = E2CF 1
3210 = 9A8B 5
3220 = DC07 6
3230 = 356A C
3240 = 940F D
3250 = 64E2 6
```

Get it right ✓

3½" DISKS

TYPE		QTY 25	50	100
BENCHMARK	DS/DD	£17.00	£29.00	£43.00
UNBRANDED	DS/DD	£11.50	£19.50	£37.00
EX WESTERN DIGITAL VGA DRIVERS (NEW BUT FORMATED AND LABELLED)	DS/DD	SOLD OUT Please call – more due		£25.00 PER 100
BENCHMARK	DS/HD	£33.60	£61.00	£67.00
UNBRANDED	DS/HD	£25.00	£36.00	£59.00
EX WESTERN DIGITAL VGA DRIVERS (NEW BUT FORMATED AND LABELLED)	DS/HD	SOLD OUT Please call – more due		£45.00 PER 100

5¼" DISKS

TYPE		QTY 25	50	100
BENCHMARK	DS/DD	£11.00	£18.00	£28.00
UNBRANDED	DS/DD	£9.50	£16.00	£24.00
OVERLABEL INC TYVEX ENVELOPE	DS/DD			£20.00 PER 100
BENCHMARK	DS/HD	£18.00	£31.50	£52.50
UNBRANDED	DS/HD	£14.00	£27.00	£48.00
OVERLABEL INC TYVEX ENVELOPE	DS/HD	SOLD OUT Please call – more due		£28.00 PER 100

ALL DISKS 100% CERTIFIED ERROR FREE 3½" INC LABELS 5¼" ENVELOPES + LABEL SET

DISK STORAGE BOXES

3½" 10 CAPACITY QTY 5	£4.50
3½" 50 CAP LOCKABLE	£3.70
3½" 100 CAP LOCKABLE	£4.70
3½" 240 CAP STACKABLE	£15.00
5¼" 10 CAPACITY QTY 5	£4.99
5¼" 50 CAP LOCKABLE	£3.70
5¼" 100 CAP LOCKABLE	£4.70

THESE PRICES ONLY IF BOUGHT WITH DISKS

ACCESSORIES

IBM PRINTER CABLE 1.8 MTR (ALSO FOR ATARI AND AMIGA)	£4.90
25 PIN M-M AND M-F 1.8 MTR	£4.90
36 PIN CENTRONIC M-M 1.8 MTR	£4.90
RIGID DOUBLE SIDED MOUSE MAT	£4.50

ALL PRICES INCLUDE VAT & P&P UK ORDERS ONLY

24 HOUR ORDERLINE 0597 851784

M C S

Cheques and Postal Orders to:

Manor Court Supplies Ltd

Telephone: 0597 851792
Fax No: 0597 851416
Dept MU1, Glen Celyn House, Penybont,
Llandrindod Wells, Powys, LD1 5SY.

EDUCATION AND GOVERNMENT ORDERS WELCOME

Alsystems
EDUCATION AND TRAINING MICROCOMPUTER SYSTEMS

SJ RESEARCH

Telephone ALTON (0420) 561111

IBM AUTHORISED DEALER

Acorn The choice of experience

Hardware Offers

Acorn

A3000 Computer with 2 Mbyte Ram	**£558**
A3000 as above & CM8833 Colour Monitor	**£753**
A3000 Learning Curve with 2 Mbyte Ram	**£658**
A3000 Learning Curve as above & CM8833 Colour Monitor	**£853**
A420 Learning Curve with CM8833 Colour Monitor	**£1199**

Canon ION Still Video Camera Ideal for digitising pictures into DTP, paint package or graphical database.

BBC Software in stock

A3000 Software in stock

Plus EPSON printers. Hi-Res & Multi-sync monitors. CPU / Memory upgrades. Midi / Analogue Ports. Hard Disk Drives (also for A3000). Network Installations etc.

Special discounts to the educational sector

All prices exclude VAT (17.5%)

VISA Access

A5000
Learning Curve
with Multi-sync Colour Monitor

£CALL

Why not visit our showroom for a demonstration.

Open Mon - Sat. 9-6pm

47 Winchester Rd, Four Marks, Alton, Hampshire.

Mike Cook finds the answers to your technical questions

On the agenda...

- Liquid crystal glasses
- Adding drives
- I^{2}C additions
- BBC B to BBC A3000
- Powering external disc drives
- Using IBM printers

Crystal glasses

I HAVE been using a BBC B for many years. A few months ago I started using an Archimedes.

I find the checksum facility for checking Basic program very useful – debugging is much speedier now. But my complaint is that when it comes to typing in assembler, the comments following the semi-colon are included in the checksum. I accept that they are useful to show what's what, but having to type them in in their entirety is a real pain. If I could put these comments in a separate panel next to the program – but not in the program itself – it would be a great help.

I have also found that when I use !PrinterPS it is possible to produce a PostScript file, This file contains the information on font equivalence. However, if you have produced your own font with FontEd how is it possible to use PrinterPS?

The only solution I have come up with is to use FontFX and use the DrawFile version of the fonts instead. This is fine for titles and headings, but what of large text areas? Are there any PostScript commands to define a font, or even a shape, that appears more than once and can you then get PrinterPS to produce them?

A few years ago I came across a pair of liquid crystal type spectacles. These could switch from black to transparent and alternated between each eye every VSync. Created to allow you to see 3D effects, this wasn't cheap, but is anything similar available for the Archimedes?

I have tried some stereoscopic graphics, but have only been able to see the effect with red-blue cellophane glasses and it doesn't really work. – **Paul Fidler, Barnet, Herts.**

● *The checksum generator we use for the listing is automated and so we would have to remove all the comments in order to exclude them from the checksum. This would mean that the program would have to be tested again. As many of our programs are from non-staff writers this would be very difficult.*

The PrinterPS problem comes down to a simple equation. You can only successfully use a font which has a PostScript equivalent. This problem has been overcome on the Apple Macintosh with downloadable fonts. If the laser printer has not got a specific font in its repertoire it requests the bit-map of the font from the computer. You can't do this at present on the Archimedes although the new A5000 printer drivers do have this facility.

I did consider including an articles on 3D glasses in my Body Building articles. However, I think you'll have noticed that these glasses have been quietly withdrawn from sale. A few enquires revealed two difficulties. First of all they weren't terribly good – liquid crystal switching isn't quite up to what is required. However, perhaps the more important reason for their demise was the reported cases of headaches and nausea experience by a high proportion of people.

I^{2}C Hardware Info

I HAVE been very interested in your recent Body Building course on the I^{2}C bus because I want to design my own hardware add-ons for the Archimedes. But I have one small problem as I don't know where to get data sheets or for that matter chips that can use this bus.

I would be grateful for any information or addresses where I can get information. – **M.W. Godwin, Blackpole Pole, Worcester.**

● *Data books on the I^{2}C are published by Phillips Components. The two books you want are Book 4 Parts 12a and b . They are available from any Phillips distributor. You'll also find a list of distributors in the back of the book too. Most of them are purely trade distributors and you'll need an account with them.*

However, Farnell Electronics will accept credit cards. You can contact them on 0532 636311. The order code for the books you want is 171-892 and the current price is £18 each.

Most of the devices mentioned are either microprocessors or building blocks for TV systems.

➤

BBC B Update

I AM considering updating my BBC B to an A3000, but when I borrowed one from a friend recently, my Fidelity TV/Monitor with Scart socket was not compatible.

The screen was completely grey and only when the brightness was turned right up could faint grey graphics be seen. Is it possible to adapt this monitor to work with an A3000 or will I need a new one? – **David Alexander, Bromley Cross, Lancs.**

● *I covered the workings of the Scart connector in the October 1990 Body Building article. It sounds like your TV set is not switched over to the Scart socket and all you are seeing is a small amount of leakage signal. Pins 8 and 16 act as a switch for the internal/external video and sync sources. It sounds like these need connecting up to select the Scart socket.*

To do this you need to connect them up to 12 volts, although most sets will switch from 5 volts. Unfortunately, on the A3000 there is no switching voltage available on the RGB socket, so you could try connecting a 9 volt battery between these pins – 8 and 16 – and the -ve end to the earth, pin 18.

Drive power

I HAVE a 40/80 track switchable 5.25in disc drive which up to now I've used on a BBC B and a Master 128.

Now I want to use it on an Archimedes 420/1. I am aware that I'll need a disc buffer, but my problem is that up to now I have been drawing power directly from the computer, as the drive has no PSU.

I read in a review – not in my usual Micro User – that the disc buffer supplied by Technolog has an optional extra of a BBC-style power connector. But powering on an external 5.25in drive from an Arc could seriously hurt it. What does it mean, and what will get hurt the drive or the Arc?

If the Technolog buffer is suitable – I'll also have an internal hard disc drawing power from the computer – my system will be neater. However, if I need to draw power for the floppy from the mains, what should I do about a suitable power supply? Are there any cheap retired BBC Micro power supplies available?

Please help me out, as I'd prefer the neater arrangement with the drive powered from the computer. – **Alexander Seeley, Finchley, London.**

● The simple fact is that the computer's power supply is protected against overload and overheating. Therefore, pulling too much power out of it can't do it any harm.

It could be that it would not work, but I can't see anything being damaged. The only exception is that you might be able to induce a hard disc head crash by making the power supply shut down.

To be safe from that, you could make your own power supply – details appeared in the January 1991 issue of The Micro User. The kit of parts costs £42.

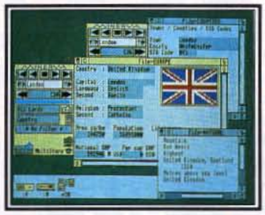
S
O
L
V
E
D
HELP

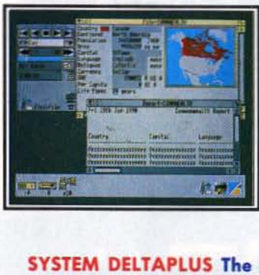
BUSINESS EDUCATION

MINERV

OR HOME DATABASES

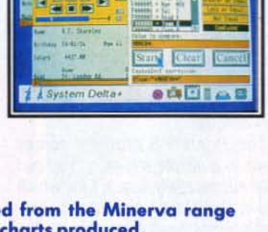
MULTISTORE The ultimate in database technology. A powerful database for the business or serious home user. MultiStore is a multi-tasking relational database which allows many database files to be opened at one time. Files may be linked so that relationships between files are automatically tracked. Rapid searches by any criteria, including 'sounds like' facility. Key fields for instant search, indices to allow file browsing in more than one order without sorting. Fast sort facility by single field or complex expression. Comprehensive reporting facilities allow any report, including totalled lists of fields, labels with multi-font capability, line trapping, justification, paging, multi-set stationery and even completely relational reports. Data can easily be exported to other RISC OS packages. MultiStore is a professional package and probably the most comprehensive database available today. **£299.00 INC V.A.T.**





FLEXIFILE The perfect database for education and small business users. FlexiFile is a new powerful multi-tasking database with friendly screen displays. Multiple files may be open at the same time with relational linking between any two files. FlexiFile allows fast sorts to be carried out and with its soundex searching allows even mis-spelt items to be found. Mathematics can be performed using the macros while indices allow you to browse the records in more than one order without performing sorts. FlexiFile lives up to its name giving the user full flexibility with ease of use. **£149.95 INC V.A.T.**

SYSTEM DELTAPLUS The database for the serious home user or enthusiast. System DeltaPlus is a comprehensive database giving you power coupled with ease of use. Easy to use video style controls and the ability to define your own card layouts make this database suitable for all types of data entry. Searches can be performed by simply selecting from within windows or by multiple criteria. Reports can be produced together with labels up to four across with blank line strip. With comprehensive maths, sorts and searches System DeltaPlus is hard to beat. System DeltaPlus may be programmed if required allowing you to customise the package or write your own applications. **£79.95 INC V.A.T.**



GRAPHBOX* **Data can be imported from the Minerva range of databases to GraphBox and stunning charts produced.** With twenty different charts and graphs you will always be able to present your data to its best. GraphBox also imports data from other RISC OS packages. With a 'Hot Link' to Pipedream 3 which allows for automatic updating of graphs from data produced and the ability to export charts as draw files. Graph Box is the answer you have been looking for.

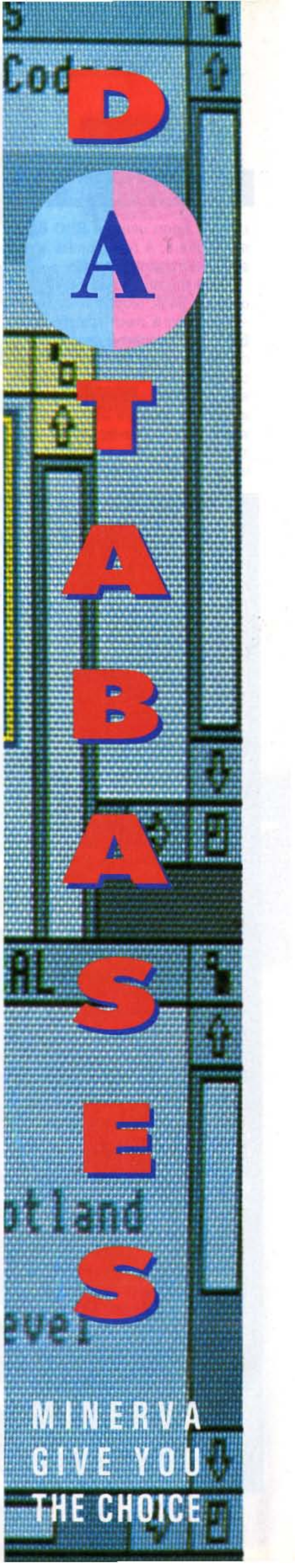
* *Graphbox is not a database, but can be used with any of the above programs for reproduction of charts and graphs.*

£79.95 INC V.A.T.

MINERVA

SOFTWARE

MINERVA HOUSE, BARING CRESCENT, EXETER, DEVON EX1 1TL
TEL: 0392 437756 FAX: 0392 421762



PROBLEM SOLVED HELP

Printer driving

HAVING an Archimedes 420/1 and an IBM graphic printer, I've found that the !PrinterDM and !PrinterPS utilities are incompatible with my printer.

However, the correct printer driver does exist on the First Word Plus utilities disc. This is fine for printing letters, but a pain when it comes to pictures, since they must be loaded into First Word Plus and saved again. The situation with !Draw files is even worse, as you must convert these to !Paint files which is less than easy.

Would it be possible to use this printer driver directly from the Desktop as with !PrinterDM and !PrinterPS?

I'd also like to know how to connect a second disc drive to the Archimedes. I have a 3.5in drive as supplied with the Pres Advanced Plus Three for the Electron. This has its own PSU, but there don't seem to be any external ports for it and I can't find any help in the User Guide. – **M. Parmar, Redbridge, Essex.**

● *A true printer driver engages in a dialogue between itself and the application in order to what what to print. First Word Plus contains its own routines for talking to a printer and as there is no way this code can talk to other applications, so unfortunately it can't be used. As far as I know there is no driver yet for this type of printer.*

It is possible to add another 3.5in drive. You'll need a connector to chain another drive to the existing one. However, as you have seen there is no external connector so you'll have to cut a slot in the side of the box to get the cable out. Try to keep the lead as short as possible.

I^{2}C socket difficulties

I WOULD be very grateful if you could help me with some problems I'm having with the I^{2}C interface board.

I have read your article in the May issue about extracting the I^{2}C bus signal from the computer. As I don't have Econet fitted, I decided it would be best to put the I^{2}C socket where Econet should be. I ordered the I^{2}C board, a 5-pin header plug and DIN socket.

On opening my A3000 I found a DIN socket where Econet should be. I reassembled the computer and removed the Econet Not Fitted sticker. I connected the interface board to the din socket via some 4-core cable but couldn't get it to work.

When I checked the +5v and 0v wires with a multimeter there was no voltage. The lead from the computer to the interface board had been checked for continuity and sort-circuits and was fine.

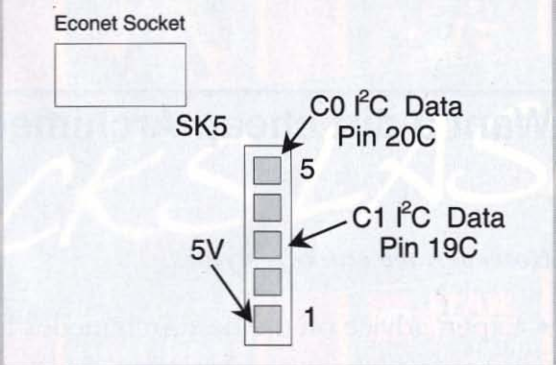
Therefore, I assume that the DIN socket fitted at the back of the computer was not connected to anything. Should I plug the 5-pin header into the SK5 and connect the wires from it to the existing DIN socket? If so, how should I connect wires to the DIN socket and which of SK5's pins should be connected to it?

Should I remove the existing DIN socket and fit the one I ordered in its place? If so, how would I remove it and fit the new one? Or perhaps there is a better way to get the signals out of the computer. – **Thomas McGowan, Millhouses, Sheffield.**

● *The Econet DIN socket is fitted on all computers irrespective of whether Econet is there or not. When fitting an Econet interface a board is plugged into the 5-pin header socket. So,you see, the header is wired to the socket. That's why I thought we could use it as a convenient way to getting the I^{2}C signals out of the computer.*

What you need to do is wire the header plug to the correct podule signals and plug the header into the SK5 socket. Note that the 0v line is already connected to the DIN socket.

Unfortunately, the diagram of SK5 showed 6 sockets and not 5. Below is the correct version of the diagram.



Drive swapping between Arc and BBC

BOTH my Archimedes 440 with no additional podules and BBC Master 128 are housed in a Viglen case with a 5.25in drive for drive :0 and a 3.5in drive for :1.

I understand that you can only have up to four floppy disc drives connected to the Archimedes at once. Would it be possible to have the Master's 3.5in drive as :1 on the Archimedes and the 5.25in drive as :2, but not at the same time? This would allow the Master to use them as well, though obviously not concurrently.

The two drives will have to stay inside the Viglen box because I no longer have their individual casings. As they have no PSU they would have to use the Master's PSU as a power source. I know that you say running discs off a BBC Micro's PSU is a recipe for disaster but it hasn't given me any trouble in four years. I would appreciate your help. – **Stuart Ford, Woodham, Surrey.**

● *You can have four floppies connected to your Archimedes. I have two internal drives in my Archimedes and using the Watford disc extender I can connect up my two drives from my Model B. However, to do this I have to unplug them from the Model B and plug them into the Archimedes.*

It would be possible to use something like the Watford Disc Drive sharer but I'm told that the Archimedes would have to be running under a DFS system for this to work.

You see the problem is that both the Master and the Archimedes would be acting as disc bus drivers: They use open collector drive buffers so that as long as only one computer is accessing the drive it should be fine. However the potential is there for disaster, so it is not a very safe option.

In theory it should be possible to construct a solid state drive switch. If I were doing this I would pass the outputs from the computer though two 74LS158 data switches giving this drive some additional 7438 buffers. You'll need pull-up resistors on the inputs of your switches.

As to the outputs from the disc drive, pass them through an inverter and then a separate 7438 buffer for each computer. You should then be able to switch between the two computers with a single switch into the 74LS158s. I have not tried this, but can't see why it would not work.

Ace Computing

RISC OS Euclid is the best multi-tasking 3D graphics and animation system for the Archimedes. It is effectively a 3D version of Draw.

Mogul makes full use of **Euclid**'s unique hierarchical data structure to generate animations of 3D objects with articulated motion and simultaneous camera motion.

ArcLight is a multi-tasking ray-tracer which will generate a realistic Euclid picture, or a complete Mogul film, while you are free to get on with other work.

Tween produces films from Draw files. It uses techniques similar to **Mogul** and generates a film by calculating intermediate frames from a set of key positions.

Splice allows you to edit films produced by **Mogul** or **Tween**. You can even produce hand-drawn cartoons by converting sprites from any source.

Such is the enthusiasm for **Euclid** there is a user group called **Elements** , now in its second year, which provides a quarterly disk containing hints, tips, animations and user pictures.

ArcLight £50
Euclid £70
Mogul £20
Splice £30
Tween £30
(inc.VAT)

Ace Computing
27 Victoria Road,
Cambridge,
CB4 3BW.

Tel: (0223) 322559
Fax: (0223) 69180

Want a dirt cheap Archimedes Computer?...

...don't come to us!

However, we can offer you...

- Expert advice on the best Archimedes hardware and software for your needs
- Fast, courteous mail order service, once you have decided what you want to buy
- After sales service from people who know what they are talking about
- A magazine which we publish, called "Archive", to keep you up-to-date
- Special discounts for Archive subscribers on both hardware and software

Why not give us a call and talk to Paul or Adrian?

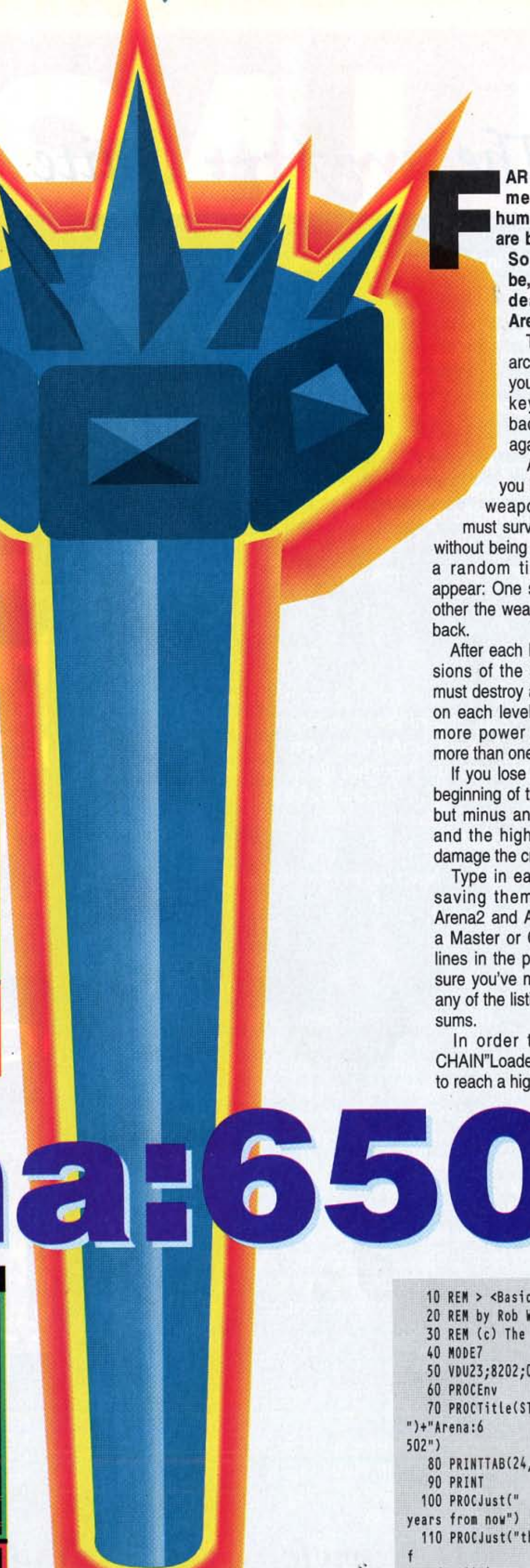
...Remember, price isn't everything!

Norwich Computer Services

96a Vauxhall Street, Norwich NR2 2SD. Phone 0603-766592. Fax -764011

Arena:6502

Rob Walmsley hurls you into a strange future in this action-packed arcade game



FAR into the future all the menial tasks that humans have to perform are being done by robots. So what fun can there be, except a fight to the death in the Alien Arena?

This is an action-packed arcade game that will have you biting the edge of your keyboard and coming back for more again and again.

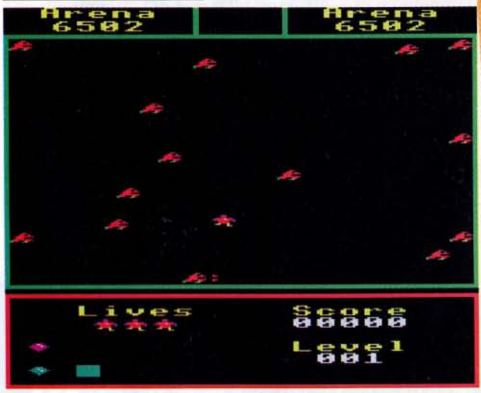
As you enter the Arena you have three lives and no weapons or power, so you must survive, at least for a while without being able to fight back. After a random time two crystals will appear: One supplies power and the other the weapon. Now you can fight back.

After each level with the small versions of the strange creatures you must destroy a giant version of it. But on each level you are supplied with more power and the ability to fire more than one bolt at a time.

If you lose a life you restart at the beginning of the level you've reached but minus any weapons or power – and the higher the level the more damage the creatures can take.

Type in each of the four listings, saving them as Loader, Arena1, Arena2 and Arena3. If you are using a Master or Compact add the three lines in the panel to Listing II. Make sure you've made no typing errors in any of the listings by using the checksums.

In order to run the game just CHAIN"Loader" and may you survive to reach a high score.



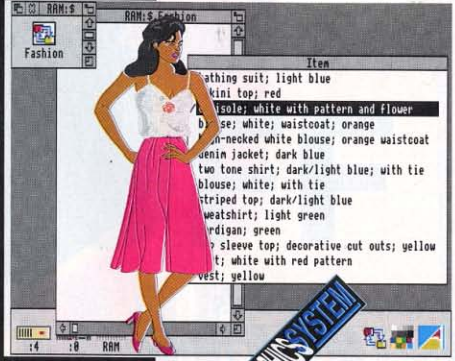
Arena
6502
Arena
6502
Lives
Score
00000
Level
001

```
   10 REM > <BasicSave$Dir>.Loader
   20 REM by Rob Walmsley
   30 REM (c) The Micro User
   40 MODE7
   50 VDU23;8202;0;0;0;
   60 PROCEnv
   70 PROCTitle(STRING$(10,"
")+"Arena:6
502")
   80 PRINTTAB(24,2);"By Rob Walmsley"
   90 PRINT
  100 PROCJust("    In the future, 2000
years from now")
  110 PROCJust("the perfect society is
f
ormed. All")
  120 PROCJust("ills are banished from
```

➤

The smArt Suite

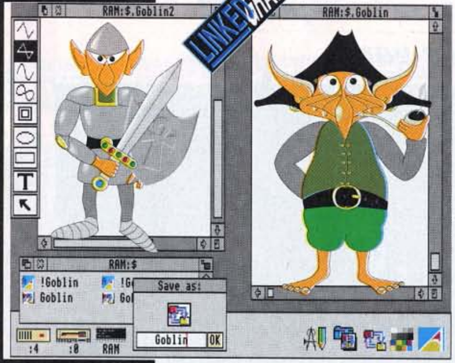
All 4Mation packages for the Archimedes carry a FREE SITE LICENCE.


RAM:$
Fashion
RAM:$.Fashion
Item
athing suit; light blue
kini top; red
isole; white with pattern and flower
b se; white; waistcoat; orange
n-necked white blouse; orange waistcoat
denim jacket; dark blue
two tone shirt; dark/light blue; with tie
blouse; white; with tie
striped top; dark/light blue
weatshirt; light green
rdigan; green
sleeve top; decorative cut outs; yellow
t; white with red pattern
vest; yellow
RAM
LINKED GRAPHICS SYSTEM

SmArt is a Linked Graphics System. When picture files are loaded into smArt, different parts of the picture can be changed by making selections from a menu. The graphics components are automatically scaled so that the parts always fit. Pictures may be saved as Draw files or transferred to DTP programs or any other applications which can handle Draw files.

The smArt package comes with over two dozen files on subjects ranging from shops to cars, and churches to British Isles maps. Available as separate products are discs of smArt files on specific themes such as Leisure, Heraldry, Faces, Fashion, Homes, Trees & Gardens, and Dinosaurs.

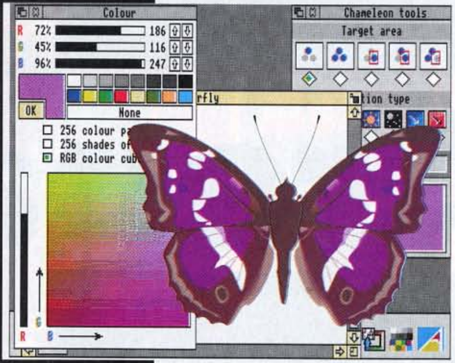
smArt £55 (NZ$ 198) smArt discs £16 (NZ$ 59)


RAM:$.Goblin2
RAM:$.Goblin
RAM:$
!Goblin
Goblin
Save as:
Goblin
OK
RAM

For those wishing to create their own smArt files, smArtFiler is an application which compiles smArt files from your source Draw files. Full instructions are provided along with lots of examples. Individual components may be scaled, rotated, and placed in front of or behind other components. Menu entries may be specified.

If it can be drawn it can be a smArt file.

smArtFiler £35 (NZ$ 129)


Colour
R 72% 186
G 45% 116
B 96% 247
OK
None
☐ 256 colour p
☐ 256 shades of
☑ RGB colour cub
Chameleon tools
Target area
tion type
R
B

Chameleon is an ideal companion to smArt, and a must for anyone who needs to make quick and easy colour changes to Draw files. As well as palettes for 16 and 256 colour modes, there are options for 256 shades of grey and a RGB colour cube which provides thousands of colours. Colours may be selected from other Draw files so can be copied from one picture to another. Colours may also be changed in HSV values; Hue, Saturation and Value. Edited files may be saved as normal Draw files or as colour separations. A clever Undo and Redo facility allows virtually any number of colour changes to be cancelled and then reinstated. Zoom and Magnification facilities allow accurate editing of small areas.

Chameleon £25 (NZ$ 95)

FREE DEMO DISC

Send us a blank disc to receive a demo copy of smArt and Chameleon. Only the save facility is missing. Poster demo also available.

Poster	£89	NZ$367.50
Snippet	£29	NZ$120.00
Jigsaw	£29	NZ$120.00
Jiglet	£29	NZ$120.00
DTP Seeds*	£ 8.45	NZ$ 35.00

* (book - no VAT)

UK Prices: incl. P&P, excl. VAT @ 17½%.
NZ prices incl. GST.

4MATION

4Mation • 14 Castle Park Road
Barnstaple • Devon • EX32 8PA
Tel. (0271) 25353 Fax. (0271) 22974

VISA MasterCard

4Mation New Zealand
PO Box 12-228 • Christchurch
Fax. (03) 655-055

LaserDirect

SPECIAL OFFER

James Wyatt
LaserDirect
A4

Reduced from £999.00 to £799.00*
*prices subject to 17.5% VAT
while stocks last

Direct drive 6 page per minute printers with our unique LaserDirect software - which means the fastest printing time of any Archimedes printer, background printing, page compression, page queuing, choice of half tone settings and Epson LQ emulation. Based on the Qume 300 dpi printer engine.

Computer Concepts Ltd

Gaddesden Place,
Hemel Hempstead, Herts.
HP2 6EX
Tel: 0442 63933
Fax: 0442 231632

Not suitable for the Archimedes A540 machines. Not tested on the A5000.

```
t
he world and")
  130 PROCJust("all is peaceful for 2512
 years.        ")
  140 PROCJust("    Unfortunatly the peo
ple get bored")
  150 PROCJust("and the Arena:6502 is cr
eated. The")
  160 PROCJust("Arena consists of severa
l alien life-")
  170 PROCJust("forms and a victim!.
          ")
  180 PROCJust("    You are that victim,
 luckily the")
  190 PROCJust("crystals you find in the
 Arena can be")
  200 PROCJust("used to increase your fi
re power.      ")
  210 PRINT
  220 PRINTSPC15"A - move left"
  230 PRINTSPC15"S - move right"
  240 PRINTSPC15": - move up"
  250 PRINTSPC15"/ - move down"
  260 PRINTSPC11"Space - Fire / Enter Ar
ena"
  270 PRINTTAB(6,24)"Hit space to enter
the Arena"
  280 REPEATUNTILGET=32
  290 PAGE=&3000
  300 CHAIN"Arena1"
  310 DEFPROCTitle(T$):CLS
  320 PRINTTAB(0,0);CHR$131;CHR$157;CHR$
132;CHR$141;T$
  330 PRINTTAB(0,1);CHR$131;CHR$157;CHR$
132;CHR$141;T$
  340 ENDPROC
  350 DEFPROCJust(T$):I%=1
  360 IF LENT$>38 PRINT" ";T$;:ENDPROC
  370 IFMID$(T$,I%,1)=" " ANDMID$(T$,I%+
1,1)<>" " T$=LEFT$(T$,I%)+" "+RIGHT$(T$,
LENT$-I%):I%=I%+1
  380 I%=I%+1
  390 IFI%>LENT$ I%=I%-LENT$
  400 GOTO360
  410 DEFPROCEnv
  420 ENVELOPE1,129,-15,-8,-3,10,10,10,9
6,0,0,-96,96,96
  430 ENVELOPE2,1,-2,-2,-2,255,255,255,3
0,-2,-2,-2,100,5
  440 ENVELOPE3,0,0,0,0,0,0,0,121,-1,-1,
-1,120,120
  450 ENDPROC
```

```
   10 =     0 0   |   240 = EC19 8
   20 =     0 0   |   250 = 6E8D 5
   30 =     0 0   |   260 = C76A 6
   40 = 8AFC C    |   270 = 7F97 8
   50 = F716 F    |   280 = 5B81 0
   60 = B20C F    |   290 = A4C6 D
   70 = A7D7 F    |   300 =  27D D
   80 = F49D 6    |   310 =  445 2
   90 = FF3E D    |   320 = 59A1 9
  100 = 1696 7    |   330 = 1C15 F
  110 = 1AC3 0    |   340 = ED0F C
  120 = 3772 4    |   350 = 64D6 9
  130 = E804 8    |   360 = D6B0 5
  140 = BBB2 3    |   370 = 640A 8
  150 = 9F55 4    |   380 = A10E C
  160 = 33A1 1    |   390 = 8C5F B
  170 = 66FE 7    |   400 = E7EE 2
  180 = 86CF 1    |   410 = A494 3
  190 = 51B4 8    |   420 = CCC1 C
  200 = D5D4 B    |   430 =  153 1
  210 = FF3E 9    |   440 = C00D 8
  220 = CA9C 7    |   450 = ED0F 5
  230 = 16D6 F    |
```

Listing II

```
   10 REM > <BasicSave$dir>.Arena1
   20 REM by Rob Walmsley
   30 REM (c) The Micro User
   40 FORL=0TO2STEP2:P%=&2E00
   50 [OPTL
   60 PHA
   70 LDA#&30:STA&81:LDA#0:STA&82:TYA:AN
D#7:STA&80:TYA:LSRA:LSRA:LSRA:ASLA:TAY:T
XA:ASLA:ROL&82:ASLA:ROL&82:ASLA:ROL&82:A
DC&80:ADC&C376,Y:STA&76:LDA&82:ADC&81:AD
C&C375,Y:STA&77
   80 PLA:ROLA:ROLA:TAY:LDA table,Y:STA&
75:STA&78:LDA table+1,Y:STA&74:LDA table
+2,Y:STA CO+1:LDA table+3,Y:STA CO+2
   90 LDX#0
  100 .MA LDA&76:AND#&F8:STA&70
  110 LDA&77:STA&71
  120 LDA&76:AND#7:TAY
  130 .CO LDA&FFFF,X
  140 .OT STA(&70),Y
  150 INY:INX:CPX&78:BEQ EN
  160 CPY#8:BNE CO
  170 LDA&70:ADC#&7F:STA&70
  180 LDA&71:ADC#2:STA&71
  190 LDY#0:BEQ CO
  200 .EN CLC:LDA&76:ADC#8:STA&76:BCC NO
:INC&77
  210 .NO CLC:LDA&78:ADC&75:STA&78
  220 DEC &74:BNE MA
  230 RTS
  240 .table
  250 \ Data,Width,Height
  260 EQUD &0A000408:\ You
  270 EQUD &0A200408:\ You 2
  280 EQUD &0A400408:\ Blank 1 4*8
  290 EQUD &0A400306:\ Blank 2 3*6
  300 EQUD &0A400102:\ Bullet 1 Blank
  310 EQUD &0A600102:\ Bullet 1
  320 EQUD &0A400102:\ Bullet 2 Blank
  330 EQUD &0A620102:\ Bullet 2
  340 EQUD &0A400204:\ Bullet 3 Blank
  350 EQUD &0A640204:\ Bullet 3
  360 EQUD &0A400306:\ Bullet 4 Blank 10
  370 EQUD &0A6C0306:\ Bullet 4
  380 EQUD &0A7E0408:\ Magenta Crystal
  390 EQUD &0A9E0408:\ Cyan Crystal
  400 EQUD &0ABE0306:\ Red Pixel
  410 EQUD &0AD00306:\ Green Pixel
  420 EQUD &0AE20306:\ Yello Pixel
  430 EQUD &0AF40306:\ Blue Pixel
  440 EQUD &0B060306:\ Magenta Pixel
  450 EQUD &0B180306:\ Cyan Pixel
  460 EQUD &0B2A0306:\ White Pixel
  470 EQUD &0A400101:\ Hmmm
  480 EQUD &0B3C0408:\ Red Rodent 1
  490 EQUD &0B5C0408:\ Red Rodent 2
  500 EQUD &0B7C0408:\ Green Gang 1
  510 EQUD &0B9C0408:\ Green Gang 2
  520 EQUD &0BBC0408:\ Yellow Blobs 1
  530 EQUD &0BDC0408:\ Yellow Blobs 2
  540 EQUD &0BFC0408:\ Blue thing 1
  550 EQUD &0C1C0408:\ Blue thing 2
  560 EQUD &0C3C0408:\ Mag Monster 1
  570 EQUD &0C5C0408:\ Mag Monster 2
  580 EQUD &0C7C0408:\ Cyan Cars 1
  590 EQUD &0C9C0408:\ Cyan Cars 2
  600 EQUD &0CBC0408:\ White Warriors 1
  610 EQUD &0CDC0408:\ White Warriors 2
  620 .e :]:NEXT
  630 DATA &33110000,&50000,&3031111,&A0
303,&2B032222,&5050303,&33220000,&A00001
1,&33110000,&5000022,&3031111,&A0A0303,&
2B032222,&50303,&33220000,&A0000
  640 DATA &0,&0,&0,&0,&0,&0,&0,&0,&3030
300,&45A18B50,&A047528A,&A18B5000,&3DA00
45,&E5030303,&47528A00,&A0
  650 DATA &11331100,&0,&33333733,&1133,
&333B3322,&22,&220000,&0,&143C1400,&0,&3
C3C3D3C,&143C,&3C3E3C28,&28,&280000,&301
0000
  660 DATA &1030303,&3030303,&3020303,&2
030303,&C0C0C04,&C0C040C,&C0C0C0C,&C0C0C
08,&F05080C,&50F0F0F,&F0F0F0F,&F0A0F0F,&
A0F0F0F,&30303010,&30301030,&30303030
  670 DATA &30303020,&33112030,&11333333
,&33333333,&33223333,&22333333,&3C3C3C14
,&3C3C143C,&3C3C3C3C,&3C3C3C28,&3F15283C
,&153F3F3F,&3F3F3F3F,&3F2A3F3F,&2A3F3F3F
,&0
  680 DATA &80901,&3030100,&203,&2030203
,&C0103,&30200,&203,&3010000,&80903,&302
0300,&40302,&3020000,&80300,&0,&0,&40000
  690 DATA &400,&20C0C00,&C0C00,&10C0C00
,&C0C00,&80000,&800,&4000000,&4,&C0C0000
,&C0C,&C0C0000,&C0C,&8000000,&8,&0
  700 DATA &1505,&F2F0F05,&50F1F,&F0F2F0
A,&F1F0F0F,&A0A0000,&A2F,&F150000,&50F,&
F0F0500,&51F0F2F,&F2F0F00,&A0A0F1F,&A0A0
000,&A,&1301000
  710 DATA &103000,&203420,&20342000,&10
3810,&10381000,&2302000,&203000,&1000000
0,&10,&30301000,&103030,&30302000,&20303
0,&20000000,&20,&33111100
  720 DATA &22333322,&5331333,&22330A00,
&A332333,&11330500,&33222200,&11333311,&
33110000,&22333333,&33133300,&22330533,&
33233300,&11330A33,&33220000,&11333333,&
14000000
  730 DATA &153D1E3C,&281400,&2A3E3C3C,&
3C00,&153D3C3C,&28280000,&2A3E293C,&1414
0000,&153D163C,&3C00,&2A3E3C3C,&142800,&
153D3C3C,&28000000,&2A3E2D3C,&2020200
  740 DATA &20207,&3F001111,&3F151515,&3
F223333,&1515153F,&2A000000,&2A000005,&2
020000,&2020207,&3F001111,&3F1515,&3F223
333,&1515153F,&2A000000,&2A000005,&0
  750 DATA &AD0D2E40,&491300,&EEFE838D,&
3D00D04,&C60D05EE,&C616D0A0,&A912D0A1,&D
008D40,&169CEA9,&D0A9FC90,&808D0049,&400
1A9FE,&8D1001AD,&80ADFE30,&290049FE,&A9F
7D001
  760 DATA &FE308D0D,&60,&0,&0,&0,&0,&0,
&0,&0,&0,&0,&0,&0,&0,&0,&0
  770 DATA &0,&0,&0,&0,&0,&0,&0,&0,&0,&0
,&0,&0,&0,&0,&9AD40000,&D978E0D
  780 DATA &AE0D98D4,&9C250D99,&D95BB0D,
&D9462,&0,&0,&0,&0,&0,&0,&0,&0,&0,&0,&0,
&1700
  790 FORI%=0TO12
  800 FORJ%=0TO63STEP4
  810 READ J%!(&A00+I%*&40)
  820 NEXT:NEXT:CHAIN"Arena2"
```

```
   10 =     0 0  |  180 = 9839 C  |  350 = 779E 7  |  520 = 1565 2  |  690 = 4AE9 9
   20 =     0 0  |  190 = CC19 6  |  360 =  10A D  |  530 = B440 5  |  700 = 1CEE 3
   30 =     0 0  |  200 = ECA0 1  |  370 = EA95 C  |  540 = D4A3 E  |  710 = CBC9 B
   40 = E7B8 8   |  210 = 5550 4  |  380 = AD37 1  |  550 =  E55 B  |  720 = 6C8A 6
   50 = 5642 8   |  220 = 1A32 2  |  390 = 9FBF 1  |  560 = 6EB6 2  |  730 = 1B98 4
   60 = 824E 6   |  230 = 9843 A  |  400 = 22D3 F  |  570 = CF93 E  |  740 = 925A C
   70 = 4724 5   |  240 = 8902 5  |  410 = 856B 5  |  580 = AF70 4  |  750 = 1B42 8
   80 = 2A5A B   |  250 =    0 5  |  420 = B64A 8  |  590 = 9DF8 A  |  760 = BEA3 5
   90 = ACA7 A   |  260 = B2EE E  |  430 = E329 4  |  600 = 52B6 F  |  770 = 2F1E B
  100 = B3E0 D   |  270 = D20D 8  |  440 = 8558 9  |  610 = F393 3  |  780 = 130D C
  110 = 884D 6   |  280 = 7328 A  |  450 = BD9A 1  |  620 = D6D3 E  |  790 = 4EF3 8
  120 = 27BA 3   |  290 =  10A A  |  460 = 6866 4  |  630 = 6EC0 9  |  800 = 5E00 E
  130 = E18F C   |  300 = 20A6 2  |  470 = 75F5 0  |  640 = DDCA F  |  810 = E8D1 4
  140 = 4F16 2   |  310 = 4045 7  |  480 = 2965 5  |  650 = 1336 5  |  820 = EFCF 2
  150 = 8EF3 D   |  320 = 20A6 F  |  490 = 8840 8  |  660 = 88A5 8  |
  160 = F8F3 D   |  330 = CB05 0  |  500 = E8A3 B  |  670 = 8006 A  |
  170 = CC9B 4   |  340 = 11DC C  |  510 = DA2B 7  |  680 = 5519 B  |
```

Get it right ✓

Listing III

```
 10 REM > <BasicSave$Dir>.Arena2
 20 REM by Rob Walmsley
 30 REM (c) The Micro User
 40 Dead=&1100
 50 AL=&1101
 60 YX=&1102
 70 YY=&1103
 80 AC=&1104
 90 C=&1105
100 MCry=&1106
110 CCry=&1107
120 Rf=&1108
130 FireNu=&1109
140 Rapid=&110A
150 OYD=&110B
160 OXD=&110C
170 Pow=&110D
180 CT=&110E
190 MT=&110F
200 B=&1110
210 A=&1140
220 BX=&1241
230 BY=&1242
240 BXD=&1243
250 BYD=&1244
260 seed=&1245
270 F=&1249
280 KeyFlag=&126F
290 KF2=&126E
300 DATA-1,2,4,-2,2,7,21,184,1,78,1,2
310 DATA-1,2,4,-2,2,7,21,184,1,78,1,2
```

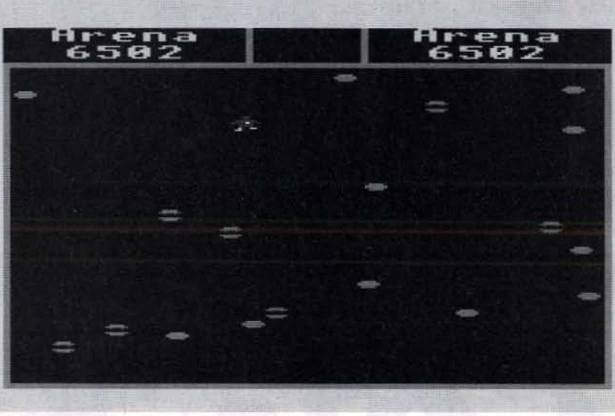
➤

```
320 DATA-2,1,4,-4,2,7,21,181,1,76,2,4
330 DATA-3,1,4,-6,0,7,21,178,1,76,3,6
340
350 FORi%=0TO1
360 FORI%=0TO2STEP2
370 P%=&1270:[OPTI%
380 .MoveRan
390 LDA #0:STA I:.l2010
400 LDX I
410 LDA A+7,X:BPL isok
420 JMP notok:.isok
430 LDA A+2,X:TAY:STA Y
440 LDA A+1,X:TAX:STA X
450 LDA #2
460 JSR &2E00
470 LDX I
480 CLC:LDA A+3,X:ADC X:STA NX
490 CLC:LDA A+4,X:ADC Y:STA NY
500 LDA NX:CMP #0:BEQ yep
510 LDA NX:CMP #76:BEQ yep
520 LDA NY:CMP #19:BEQ yep
530 LDA NY:CMP #181:BEQ yep
540 JSR Rnd:AND #63:CMP #63:BCS yep
550 LDA NX:STA A+1,X
560 LDA NY:STA A+2,X
570 JMP Notyep
580 .yep JSR Change
590 .Notyep
600 DEC A+5,X:LDA A+5,X:CMP #0:BNE Not
yet
610 LDA A+0,X:EOR #1:STA A+0,X:LDA A+6
,X:STA A+5,X
620 .Notyet
630 LDA A+0,X:PHA
640 LDA A+2,X:TAY
650 LDA A+1,X:TAX
660 PLA
670 JSR &2E00
680 .notok
690 CLC:LDA I:ADC #8:STA I:CMP #0:BEQ
Nl2010:JMP l2010:.Nl2010
700 RTS
710 .Change
720 .l1 JSR Rnd:AND #3:BEQ l1:SEC:SBC
#2:LDX I:STA A+3,X
730 .l2 JSR Rnd:AND #3:BEQ l2:TAY:LDA
Uptab-1,Y:LDX I:STA A+4,X
740 RTS
750 .Change2
760 .l12 JSR Rnd:AND #3:BEQ l12:SEC:SB
C #2:STA BXD
770 .l22 JSR Rnd:AND #3:BEQ l22:TAY:LD
A Uptab-1,Y:STA BYD
780 RTS
790 .MoveBlob
800 CLC:LDA BX:ADC BXD:STA NX
810 CLC:LDA BY:ADC BYD:STA NY
820 LDA NX:CMP #0:BEQ yep2
830 LDA NX:CMP #48:BEQ yep2
840 LDA NY:CMP #19:BEQ yep3
850 LDA NY:CMP #124:BEQ yep3
860 JSR Rnd:AND #63:CMP #63:BCC NY1:JS
R Change2:JMP MoveBlob
870 .NY1 LDA NX:STA BX:LDA NY:STA BY:J
MP Notyep2
880 .yep2 SEC:LDA #0:SBC BXD:STA BXD:J
MP MoveBlob
890 .yep3 SEC:LDA #0:SBC BYD:STA BYD:J
MP MoveBlob
900 .Notyep2
910 LDA #0:STA I:.l20102
920 LDX I
930 LDA A+7,X:BPL isok2
940 JMP Notok2:.isok2
950 LDA A+2,X:TAY:STA Y
960 LDA A+1,X:TAX:STA X
970 LDA #3:JSR &2E00
980 LDX I:CLC:LDA BXD:ADC X:STA X:STA
A+1,X
990 CLC:LDA BYD:ADC Y:STA Y:STA A+2,X
1000 LDA A+0,X:PHA:LDA A+2,X:TAY:LDA A+
1,X:TAX:PLA:JSR &2E00
1010 .Notok2 CLC:LDA I:ADC #8:STA I:BEQ
NL20102:JMP L20102:.NL20102
1020 RTS
1030 .Rnd
1040 LDY #7:.lr
1050 LDA seed+1
1060 LSR A:LSR A:LSR A:LSR A:LSR A
1070 EOR seed+3:ROR A
1080 ROL seed:ROL seed+1:ROL seed+2:ROL
seed+3
1090 DEY:BNE lr
1100 LDA seed:RTS
1110 .I NOP:.X NOP:.Y NOP:.NX NOP:.NY N
OP
1120 .Uptab EQUB 253:EQUB 0:EQUB 3
1130 .Cha
1140 LDA #0:STA I:.CHAL
1150 LDX I
1160 LDA A+7,X:BMI NH
1170 LDA A+1,X:STA &70
1180 LDA A+2,X:STA &71
1190 JSR C%
1200 LDA Hit:CMP #1:BNE NH
1210 LDA I:LSR A:LSR A:LSR A:TAY:INY:TY
A:STA Hit2:RTS
1220 .NH CLC:LDA I:ADC #8:STA I:CMP #0:
BNE CHAL:STA Hit2:RTS
1230 .C% JSR Cd:BCC Nohit:LDA #1:STA Hi
t:RTS:.Nohit LDA#0:STA Hit:RTS
1240 .Cd
1250 LDA &70:CMP &72:BCC c1
1260 LDA &72:CLC:ADC &74:CMP &70
1270 BCS checky:RTS
1280 .c1 ADC #4:CMP &72
1290 BCS checky:RTS
1300 .checky
1310 LDA &71:CMP &73:BCC c2
1320 LDA &73:CLC:ADC &75:CMP &71
1330 RTS
1340 .c2 ADC #8:CMP &73
1350 RTS
1360 .Hit2 NOP:.Hit NOP
1370 .DrawFire
1380 LDA #0:STA I:.L1130
1390 LDY I:LDA F+4,Y:BNE NG1270:JMP G12
70:.NG1270
1400 CLC:LDA Pow:AND #6:ADC #4:STA a
1410 LDA F,Y:STA X
1420 LDA F+1,Y:STA Y
1430 LDA a:LDX X:LDY Y:JSR &2E00
1440 CLC:LDA Pow:AND #6:ADC #5:STA a
1450 LDY I:CLC:LDA F,Y:ADC F+2,Y:STA F,
Y
1460 CLC:LDA F+1,Y:ADC F+3,Y:STA F+1,Y
1470 LDA F,Y:STA X
1480 LDA F+1,Y:STA Y
1490 LDA Pow:LSR A:STA Po
1500 LDY Po:LDA B+32,Y:CMP X:BCS T1250:
LDA B+36,Y:CMP X:BCC T1250:LDA B+24,Y:CM
P Y:BCS T1250:LDA B+28,Y:CMP Y:BCC T1250
:JMP F1250
1510 .T1250 LDY I:LDA #0:STA F+4,Y:DEC
FireNu:JMP G1270:.F1250
1520 LDA a:LDX X:LDY Y:JSR &2E00
1530 .G1270
1540 CLC:LDA I:ADC #5:STA I:CMP #35:BEQ
NL1130:JMP L1130:.NL1130 RTS
1550 .Po NOP:.a NOP
1560 .SetFire
1570 LDA Rapid:CMP FireNu:BNE N900:RTS:
.N900
1580 LDA #&7:LDX #Sound1 MOD256:LDY #So
und1 DIV256:JSR &FFF1
1590 LDA #0:STA I:.L920
1600 LDY I:LDA F+4,Y:CMP #0:BNE N930:LD
A I:STA J:JMP NN930
1610 .N930 CLC:LDA I:ADC #5:STA I:JMP L
920:.NN930
1620 LDA Pow:LSR A:STA Po
1630 LDY OXD:INY:TYA:ASL A:ASL A:CLC:AD
C Po:TAY:LDA B,Y:STA OX
1640 LDY J:CLC:LDA YX:ADC OX:STA F,Y
1650 LDA OXD:STA F+2,Y
1660 LDY OYD:INY:INY:INY:LDA ToYD,Y
1670 CLC:ADC Po:TAY:LDA B,Y:STA OY
1680 LDY J:CLC:LDA YY:ADC OY:STA F+1,Y
1690 LDA OYD:STA F+3,Y
1700 LDA #255:STA F+4,Y
1710 INC FireNu
1720 RTS
1730 .OX NOP:.OY NOP:.J NOP:.ToYD EQUB1
2:EQUB0:EQUB0:EQUB16:EQUB0:EQUB0:EQUB20
1740 .Check
1750 LDA YX:STA &72:LDA YY:STA &73
1760 LDA MCry:BEQ N1190
1770 LDA MCX:STA &70:LDA MCY:STA &71:LD
A #4:STA &74:LDA #8:STA &75:JSR C%
1780 LDA Hit:BEQ N1190
1790 LDA #&7:LDX #Sound3 MOD 256:LDY #S
ound3 DIV256:JSR &FFF1
1800 INC Rapid:LDA #17:JSR &FFEE:LDA #1
33:JSR &FFEE:LDA #31:JSR &FFEE:CLC:LDA #
2:ADC Rapid:JSR &FFEE:LDA #28:JSR &FFEE:
LDA #32:JSR &FFEE:LDA #2:LDX MCX:LDY MCY
:JSR &2E00:LDA #0:STA MCry
1810 .N1190
1820 LDA CCry:BEQ N1200
1830 LDA CCX:STA &70:LDA CCY:STA &71:LD
A #4:STA &74:LDA #8:STA &75:JSR C%
1840 LDA Hit:BEQ N1200
1850 LDA #7:LDX #Sound3 MOD256:LDY #Sou
nd3 DIV256:JSR &FFF1
1860 INC Pow:LDA #17:JSR &FFEE:LDA #134
:JSR &FFEE:LDA #31:JSR &FFEE:CLC:LDA #2:
ADC Pow:JSR &FFEE:LDA #30:JSR &FFEE:LDA
#32:JSR &FFEE:LDA #2:LDX CCX:LDY CCY:JSR
 &2E00:LDA #0:STA CCry
1870 .N1200
1880 LDA #3:STA &74:LDA #7:STA &75
1890 JSR Cha:LDA Hit2:BEQ N1220:LDA #25
5:STA Dead:RTS:.N1220
1900 LDA #0:STA I2:.L1230
1910 LDY I2:LDA F+4,Y:BNE NN1280:JMP N1
280:.NN1280
1920 LDA F,Y:STA &72:LDA F+1,Y:STA &73
1930 LDA Pow:LSR A:STA Po
1940 CLC:LDA Po:ADC #40:TAY:LDA B,Y:STA
 &74
1950 CLC:LDA Po:ADC #44:TAY:LDA B,Y:STA
 &75
1960 JSR Cha
1970 LDA Hit2:BEQ N1280
1980 TAY:DEY:TYA:ASL A:ASL A:ASL A:TAY:
PHA
1990 LDA A+7,Y:SEC:SBC Pow:STA A+7,Y
2000 CLC:LDA Pow:AND #6:ADC #4:STA a:LD
Y I2:LDA F,Y:STA X:LDA F+1,Y:STA Y:LDA a
:LDX X:LDY Y:JSR &2E00:LDY I2:LDA #0:STA
 F+4,Y:DEC FireNu
2010 PLA:TAY:LDA A+7,Y:BPL N1280
2020 LDA A+1,Y:STA X:LDA A+2,Y:STA Y:LD
A #2:LDX X:LDY Y:JSR &2E00:DEC AL
2030 LDA #7:LDX #Sound2 MOD256:LDY #Sou
nd2 DIV256:JSR &FFF1
2040 .N1280
2050 CLC:LDA I2:ADC #5:STA I2:CMP #35:B
EQ NL1230:JMP L1230:.NL1230 RTS
2060 .I2 NOP:.MCX NOP:.MCY NOP:.CCX NOP
:.CCY NOP
2070 .Crystal
2080 LDA MCry:BEQ N980:LDA #12:LDX MCX:
LDY MCY:JSR &2E00:JMP NN980
2090 .N980 LDA MT:BEQ NN980:DEC MT:LDA
MT:BNE NN980:LDA #255:STA MCry:JSR Rnd:A
ND #64:CLC:ADC #5:STA MCX:JSR Rnd:AND #1
27:CLC:ADC #24:STA MCY:.NN980
2100 LDA CCry:BEQ N1000:LDA #13:LDX CCX
:LDY CCY:JSR &2E00:JMP NN1000
```

➤

TAKE IT EASY!

If you would like to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User.*



➤

```
 2110 .N1000 LDA CT:BEQ NN1000:DEC CT:LD
A CT:BNE NN1000:LDA #255:STA CCry:JSR Rn
d:AND #64:CLC:ADC #5:STA CCX:JSR Rnd:AND
 #127:CLC:ADC #24:STA CCY:.NN1000
 2120 RTS
 2130 .You
 2140 LDA #0:STA XD:STA YD:STA U
 2150 LDA KeyFlag:BEQ notint:LDA #3:STA
YD:LDA #255:STA U:JMP N660:.notint
 2160 LDA KF2:BEQ qN680:JMP N680:.qN680
 2170 LDX #&BE:JSR K:BCC N630:LDA YX:CMP
 #2:BCC N630:LDA #255:STA XD:STA U:.N630
 2180 LDX #&AE:JSR K:BCC N640:LDA YX:CMP
 #75:BCS N640:LDA #1:STA XD:LDA #255:STA
 U:.N640
 2190 LDX #&B7:JSR K:BCC N650:LDA YY:CMP
 #23:BCC N650:LDA #253:STA YD:LDA #255:S
TA U:.N650
 2200 LDX #&97:JSR K:BCC N660:LDA YY:CMP
 #178:BCS N660:LDA #3:STA YD:LDA #255:ST
A U:.N660
 2210 LDA U:BEQ N670:LDA XD:STA OXD:LDA
YD:STA OYD:.N670
 2220 LDX #&9D:JSR K:BCC EN680:LDA Rf:BE
Q N680:LDA #0:STA Rf:JSR SetFire:JMP N68
0:.EN680 LDA #255:STA Rf:.N680
 2230 DEC AC:LDA AC:BNE N690:LDA C:EOR #
1:STA C:LDA #4:STA AC:.N690
 2240 LDA #2:LDX YX:LDY YY:JSR &2E00
 2250 CLC:LDA YX:ADC XD:STA YX:CLC:LDA Y
Y:ADC YD:STA YY
 2260 LDA C:LDX YX:LDY YY:JSR &2E00
 2270 LDA FireNu:BEQ N730:JSR DrawFire:J
SR DrawFire:.N730
 2280 RTS
 2290 .XD NOP:.YD NOP:.U NOP
 2300 .K LDA #&81:LDY #&FF:JSR &FFF4:CPX
 #&FF:RTS
 2310 .Sound1 EQUB1:EQUB0:EQUB2:EQUB0:EQ
UB1:EQUB0:EQUB4:EQUB0
 2320 .Sound2 EQUB0:EQUB0:EQUB2:EQUB0:EQ
UB10:EQUB0:EQUB1:EQUB0
 2330 .Sound3 EQUB1:EQUB0:EQUB3:EQUB0:EQ
UB200:EQUB0:EQUB14:EQUB0
 2340 .e:]:NEXT:NEXT
 2350 FORI%=0TO3:FORJ%=0TO11
 2360 READ B?(J%*4+I%):NEXT:NEXT
 2370 FORI%=0TO255STEP4:A!I%=0:NEXT
 2380 A%=Crystal:B%=You
 2390 C%=MoveBlob:D%=MoveRan
 2400 E%=Check
 2410 PAGE=&1A00:CHAIN"Arena3"
```

```
  10 =    0 0 |  500 = 24E3 1 |  990 = 38AE 5 | 1480 = F8F9 A | 1970 = BB45 4
  20 =    0 0 |  510 =   33 A | 1000 = 444E 4 | 1490 = 9CBF 7 | 1980 = CA28 6
  30 =    0 0 |  520 = FB3A 2 | 1010 = DCFD C | 1500 = 178B A | 1990 = A4F8 F
  40 = D781 1 |  530 = 21B5 1 | 1020 = 9843 2 | 1510 = CC21 C | 2000 =  AA2 4
  50 = 1155 0 |  540 = B4B2 D | 1030 = A1BD 6 | 1520 = FD99 8 | 2010 = DFEA 5
  60 = F4E5 0 |  550 = DBFC 1 | 1040 = F30C D | 1530 = 98DE 1 | 2020 = F128 4
  70 = 5CA5 5 |  560 = 5AE5 5 | 1050 = 6602 0 | 1540 = AEF1 5 | 2030 = E882 1
  80 = CB19 B |  570 = 9060 1 | 1060 =  CA1 2 | 1550 = A6D9 3 | 2040 = 209C 5
  90 = 6A3B 2 |  580 = C634 F | 1070 = 87DF 7 | 1560 = 4132 6 | 2050 = 254F C
 100 = 478D 8 |  590 = 8EBD B | 1080 = D218 1 | 1570 = 59A0 A | 2060 = 7DF9 E
 110 = 6E58 B |  600 = 3E5A 0 | 1090 = B489 F | 1580 = 2951 C | 2070 = D361 A
 120 = E805 2 |  610 = 2434 5 | 1100 = 860B 1 | 1590 = 4D74 F | 2080 = FB3E 3
 130 = F72A 8 |  620 = CE39 C | 1110 = 2621 E | 1600 = 34DE C | 2090 = 3002 C
 140 = C9F9 9 |  630 = 8E6A A | 1120 = EF1C 1 | 1610 = F604 9 | 2100 = 7D00 8
 150 = 28EF 2 |  640 = 1BE8 D | 1130 = 2FED 2 | 1620 = 9CBF 5 | 2110 = 3A67 A
 160 = 7F1D F |  650 = D34B 1 | 1140 = 94B3 E | 1630 = CD5F 3 | 2120 = 9843 D
 170 = C49B B |  660 = 4E8A 5 | 1150 = 164A C | 1640 = 3284 7 | 2130 = 606D 4
 180 =  436 E |  670 = CD07 0 | 1160 = 8ED9 F | 1650 = 8C6F D | 2140 = 1F13 B
 190 = AA44 2 |  680 = 2CF2 4 | 1170 = 9B1D 0 | 1660 = FD75 7 | 2150 = 762A B
 200 = B1CE 0 |  690 =  325 2 | 1180 = F3C6 F | 1670 = B989 9 | 2160 = D1F6 F
 210 = 96B9 D |  700 = 9843 2 | 1190 = 253F 5 | 1680 = 7133 7 | 2170 = D445 9
 220 = BA09 8 |  710 = E2CD 0 | 1200 = 42BE 4 | 1690 = B82A 1 | 2180 = 1A8E 2
 230 = 320B 7 |  720 = DBB5 B | 1210 = A2B5 8 | 1700 = 1096 6 | 2190 = DDC4 E
 240 = CA2D 5 |  730 = F647 9 | 1220 = C4D5 4 | 1710 = A2CF E | 2200 = 927E 9
 250 = FD19 2 |  740 = 9843 6 | 1230 = FF8D B | 1720 = 9843 2 | 2210 = 5406 4
 260 = ACBC B |  750 =  67D 2 | 1240 = E97A 5 | 1730 = 7C0D 4 | 2220 = BF79 E
 270 = 4784 A |  760 =  B2A A | 1250 = 4F6C 2 | 1740 = 652F 3 | 2230 = A230 A
 280 = 1CC9 B |  770 = 4348 8 | 1260 = AFB9 C | 1750 = 2EA5 3 | 2240 = 505A 0
 290 = 88BB 2 |  780 = 9843 5 | 1270 = 7D20 0 | 1760 = 6E8B 7 | 2250 = A54F A
 300 = E994 D |  790 = 8534 5 | 1280 = D6E7 B | 1770 = 9A44 3 | 2260 = 68E4 E
 310 = E994 1 |  800 = 7AC2 A | 1290 = 7D20 C | 1780 = 3F1C D | 2270 = 5195 9
 320 = 8892 6 |  810 = 29E4 A | 1300 = C9B5 D | 1790 =  822 C | 2280 = 9843 2
 330 =  29B 3 |  820 = 91F7 B | 1310 = 90F8 4 | 1800 =  A75 2 | 2290 = 9538 D
 340 = D1AD A |  830 = 641F C | 1320 = 814D C | 1810 = 4AFD 3 | 2300 = 31E3 9
 350 = 1276 1 |  840 = 6244 D | 1330 = 9843 E | 1820 = 6D4F 4 | 2310 = C863 A
 360 = E48D 6 |  850 = 473E 3 | 1340 = 9B9B 6 | 1830 = 9457 2 | 2320 = 9981 6
 370 = 64F6 B |  860 = 206C 5 | 1350 = 9843 3 | 1840 = DCD4 6 | 2330 = 8EDD 1
 380 = F8CD A |  870 =  84D 5 | 1360 = CBEB F | 1850 = 5683 4 | 2340 = D2FD 4
 390 = 90C0 A |  880 = E80B D | 1370 = B799 E | 1860 = AA1F D | 2350 = CEBC 8
 400 = 164A 1 |  890 = 9B1C 1 | 1380 = 52FA 6 | 1870 = A935 0 | 2360 = 9704 D
 410 = 695D 8 |  900 = DB57 9 | 1390 = 8671 4 | 1880 = EBEB 7 | 2370 = DF6C 2
 420 = 9CFF E |  910 = 55A8 7 | 1400 = 237D F | 1890 = 480C 2 | 2380 = A899 7
 430 = EA04 0 |  920 = 164A 8 | 1410 = 95D5 5 | 1900 = D444 9 | 2390 = 1621 E
 440 = 8DE1 D |  930 = B69E 8 | 1420 = F8F9 4 | 1910 = 9D9D B | 2400 = 1874 8
 450 = 22D7 3 |  940 = 2F48 F | 1430 = FD99 8 | 1920 = D97A C | 2410 = 4507 E
 460 = CD07 5 |  950 = EA04 C | 1440 = 9B1C 6 | 1930 = 9CBF E |
 470 = 164A 5 |  960 = 8DE1 3 | 1450 = 65B6 9 | 1940 = 775C 7 |
 480 = 772C 5 |  970 = C9AD 6 | 1460 = AAF4 F | 1950 =   C6 7 |
 490 = 4841 3 |  980 = 8F22 F | 1470 = 95D5 2 | 1960 = 4CD0 A |
```

Get it right

Listing IV

```
  10 REM > <basicsave$dir>.Arena3
  20 REM by Rob Walmsley
  30 REM (c) The Micro User
  40 MODE2:VDU23;8202;0;0;0;
  50 HIMEM=&2E00
  60 PROCInit
  70 PROCInitScreen
  80 REPEAT
  90 PROCInitGame
 100 REPEAT
 110 PROCInitLife
 120 SOUND1,3,200,10
 130 REPEAT
 140 TIME=0
 150 l=?&1101
 160 *FX19
 170 IF?&126E PROCEnter ELSECALLA%
 180 CALLB%
 190 IFEven%CALLD%ELSECALLC%
 200 CALLE%
 210 l1=?&1101
 220 IFl<>l1 Score%=Score%+(l-l1)*5:PRO
CStatus
 230 IFTIME<4-Even%*3 GOTO230
 240 UNTIL ?&1100 OR ?&1101=0
 250 IF?&1100 SOUND0,-8,2,13:FORI%=70TO
0STEP-5:SOUND1,-10,I%,1:NEXT
 260 TIME=0:REPEATUNTILTIME>100
 270 IF?&1100 PROCDead ELSELevel%=Level
%+1:Score%=Score%+500
 280 UNTILLive%=0
 290 PROCGameOver
 300 UNTIL0
 310 DEFPROCInit
 320 HiScore%=0
 330 !&1245=RND(-TIME)
 340 ?&1104=4:?&1105=0
 350 Q%=&1140
 360 ENDPROC
 370 DEFPROCGen
 380 FORI%=0TO255STEP8:I%?&1147=&FF:NEX
T
 390 IF NOT Even%GOTO540
 400 Num%=16
 410 q=Num%+Level%:IFq>31 q=31
 420 ?&1101=q
 430 FORI%=0TO q*8-1 STEP8
 440 Q%?(I%+0)=22+Type
 450 Q%?(I%+1)=RND(75)
 460 Q%?(I%+2)=22+3*RND(52)
 470 Q%?(I%+3)=RND(3)-2
 480 Q%?(I%+4)=(RND(3)-2)*3
 490 S=2+RND(4)
 500 Q%?(I%+5)=S
 510 Q%?(I%+6)=S
 520 Q%?(I%+7)=Level%/2
 530 NEXT:ENDPROC
 540 IFType=1 RESTORE 680 ELSE IFType=3
 RESTORE760 ELSE IFType=5 RESTORE 820 EL
SEIFType=7 RESTORE 900 ELSE IFType=9 RES
TORE 980 ELSE IFType=11 RESTORE 1060 ELS
E IFType=13 RESTORE 1140
 550 READ Num%:?&1101=Num%:BX2=RND(47):
BY2=19+3*RND(33)
 560 FORI%=0TO 255STEP8
 570 IFI%<Num%*8 READ S,X,Y
 580 Q%?(I%+0)=S
 590 Q%?(I%+1)=BX2+X*4
 600 Q%?(I%+2)=BY2+Y*8
 610 S=2+RND(4)
 620 Q%?(I%+5)=S
 630 Q%?(I%+6)=S
 640 IFI%<Num%*8 Q%?(I%+7)=1 ELSEQ%?(I%
+7)=255
 650 NEXT
 660 ?&1241=BX2:?&1242=BY2:?&1243=RND(3
)-2:?&1244=(RND(3)-2)*3
 670 ENDPROC
 680 DATA 29
 690 DATA 14,4,0,14,5,0
 700 DATA 14,3,1,14,4,1,14,6,1
 710 DATA 14,2,2,14,3,2,14,4,2,14,5,2,1
4,6,2,14,7,2
 720 DATA 14,2,3,14,3,3,14,4,3
 730 DATA 14,1,4,14,2,4,14,3,4,14,4,4,1
4,5,4,14,6,4,14,7,4
 740 DATA 15,0,5,14,1,5,14,2,5,14,5,5,1
4,6,5
 750 DATA 15,0,6,15,4,6,15,5,6
 760 DATA 22
 770 DATA 15,2,1,15,3,1,15,4,1,15,5,1
 780 DATA 15,1,2,15,2,2,15,3,2,15,4,2,1
5,5,2,15,6,2
 790 DATA 14,2,3,14,5,3
```

TAKE IT EASY!

If you would like to save the wear and tear on your fingers you'll find this listing – together with all the others from this issue – on this month's disc, sent free if you subscribe to *The Micro User.*

```
 800 DATA 15,1,5,15,2,5,15,3,5,15,4,5,1
5,5,5,15,6,5
 810 DATA 15,2,6,15,3,6,15,4,6,15,5,6
 820 DATA 32
 830 DATA 16,3,1,16,4,1,16,5,1
 840 DATA 20,1,2,16,2,2,16,3,2,20,4,2,1
6,5,2,16,6,2
 850 DATA 16,0,3,16,1,3,16,2,3,16,3,3,1
6,4,3,16,5,3,16,6,3
 860 DATA 16,0,4,16,1,4,20,2,4,16,3,4,1
6,4,4,20,5,4,16,6,4
 870 DATA 16,1,5,16,2,5,16,3,5,16,4,5,1
6,5,5
 880 DATA 16,2,6,20,3,6,16,4,6
 890 DATA 16,3,7
 900 DATA 30
 910 DATA 17,2,0,17,5,0
 920 DATA 17,1,1,17,2,1,19,3,1,19,4,1,1
7,5,1,17,6,1
```

➤

Create the GRAND ILLUSION

With this brand new 3-dimensional graphics package you can create any object, of any colour and texture, illuminate it with coloured lights or spotlights.

The image can be rendered in any 256 colour screen mode and a special colour mixing algorithm enables Illusionist to display 'infinite' number of colours.

Even better, you can map full screen Mode 12 or Mode 13 sprites onto any object. The result, is tone and texture as subtle or as bold as you like, perfect shapes, shadows and shade on any image you create.

The stunning quality graphics you produce gives the illusion of being produced on much more expensive graphics hardware.

For further information please telephone or write to the address below, we'll send you a fact pack that will give you the complete picture.

And what a superb picture it is.

Price – £99.95 inc. Vat – from all good dealers or direct from Clares.

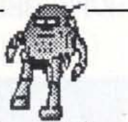
We accept Access and Visa.

CLARES

10 Years of Excellence

98 Middlewich Road, Rudheath, Northwich, CHESHIRE CW9 7DA. Telephone: 0606 48511 Fax No: 0606 48512

Introducing RB2



To compose a rhapsody or two you need to be a musical maestro - almost a Sebastian, Ludwig or Amadeus!

For the other 99%, EMR has made RB2.

It could have been a robot because it certainly helps you, but it is a new kind of music program that lets anyone compose music.

All you need is an Arc "wired for sound".

RB2 comes with a big range of instrument sounds and superb FX. Just load up, select some sounds, set the stereo, move and click the mouse to make music patterns on the unique "time grid".

Definitely no music knowledge is required, but you'll learn a lot as you create music that could have been written for Kylie Minogue or Kraftwerk...

Human age limits: 7 to 77. Robots: No limits

Program bonus: Plays Midi instruments via EMR/Acorn interface

RB2 costs only £29.95 inc VAT

Risc OS Compliant. Even plays whilst running graphics, etc.

Offer closes Jan 31, 1992 E&OE

Send for EMR's latest Arc brochure - over 28 music programs and hardware and you'll get £50 worth of discount vouchers free!

EMR LTD, 14 Mount Close, Wickford, Essex SS11 8HG Tel: 0702 335747 Access/Visa

Dozens of Fonts for £10

Italic is an exciting new RISC-OS program, costing only £10. It takes a normal Outline Font and italicises it by your choice of angle. The output is a proper font (not a draw file) so, having changed it, you can use it in all your favourite programs. Now you only have to buy half as many fonts.

Shade is a useful tool for creating DrawFiles of graduated fills, smoothly flowing between any two colours of your choice, and it costs only £4.

Back is probably the most compact wimp program on the Arc. In 32k, it offers an easy to build menu of things to load, shows a picture, blanks the screen when not in use, and more. All you wanted for £5.

Outline Fonts

They have never been such good value for money. We charge £2.50 or less for beautifully sculpted fonts. No tricks, just the best deal around. And now Copper has DemiBold and Bold.

Call for our free catalogue.

Carriage on all orders: £2

VISA

MasterCard

Design Concept

Design Concept
30 South Oswald Road
Edinburgh EH9 2HG

Telephone 031 668 4518

LASER DIRECT HIRES

NOW ONLY £869.00

Computer Concepts 600dpi HiRes LaserDirect - £869.00
+ p&p £15.00 + VAT £154.70 = Total £1038.70

Scanlight Professional - £749.00
+ p&p £15.00 + VAT £133.70 = Total £897.70

Scanlight Junior 256 - £190.00
+ p&p £7.00 + VAT £34.48 = £231.48

Impression 2.1 - £121.00
+ p&p £2.00 + VAT £21.53 = Total £144.53

Compression - £39.00
+ p&p £2.00 + VAT £7.18 = Total £48.18

Pipedream 3 - £105
+ p&p £2.00 + VAT £18.73 = Total £125.73

Syquest Removable 42Mb Hard drive system - £435.00
+ p&p £9.00 + VAT £77.70 = Total £521.70

FOR THE BEST PRICES ON THESE AND YOUR OTHER HARDWARE / SOFTWARE REQUIREMENTS PLEASE PHONE US ON 0689 872127

To order, send cheque payable to "Chelsfield Publications", To: Chelsfield Publications, 2 Bucks Cross Cottages, Chelsfield Village, Orpington, Kent. BR6 7RN

Chelsfield Publications

ACORN APPROVED

LONDON DEALER

Wide range of software and hardware stocked

New teachers scheme now available

Low price + Finance

0% Finance now available on Learning Curves

(ends Dec 31st)

TOP GAMES NOW IN STOCK

A5000 ON DEMONSTRATION

For the best service in London and Essex (we think) CALL US!!!

EDUCATION ORDERS WELCOME

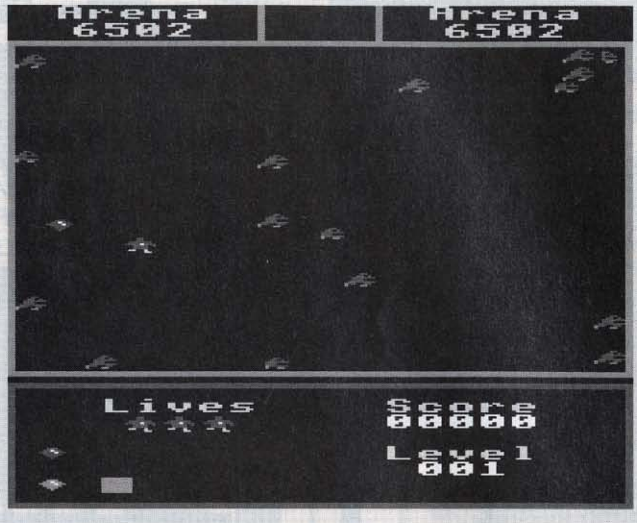
PHONE FOR BEST PRICES

Easy to get to
Train: WOOD ST Station
(British Rail)
Road: Bottom of M11,
just off North Circular
Tel No: 081-521 1784

Access

VISA

AUTOMATIC SERVICES
217 WOOD STREET
WALTHAMSTOW
LONDON E17 3NT



```
 930 DATA 17,0,2,17,1,2,17,2,2,17,5,2,1
7,6,2,17,7,2
 940 DATA 14,1,3,14,6,3
 950 DATA 17,0,5,17,1,5,17,2,5,17,5,5,1
7,6,5,17,7,5
 960 DATA 17,1,6,17,2,6,19,3,6,19,4,6,1
7,5,6,17,6,6
 970 DATA 17,2,7,17,5,7
 980 DATA 32
 990 DATA 18,2,1,18,3,1,18,4,1,18,5,1
1000 DATA 18,1,2,14,2,2,18,3,2,18,4,2,1
4,5,2,18,6,2
1010 DATA 18,1,3,18,2,3,16,3,3,16,4,3,1
8,5,3,18,6,3
1020 DATA 18,1,4,18,6,4
1030 DATA 18,1,5,16,2,5,16,5,5,18,6,5
1040 DATA 18,1,6,18,2,6,18,3,6,18,4,6,1
8,5,6,18,6,6
1050 DATA 18,1,7,18,3,7,18,4,7,18,6,7
1060 DATA 30
1070 DATA 19,2,1,19,3,1,19,4,1
1080 DATA 19,1,2,19,5,2
1090 DATA 19,1,3,19,6,3
1100 DATA 19,0,4,19,1,4,19,2,4,19,3,4,1
9,4,4,19,5,4,19,5,4,19,6,4,19,7,4
1110 DATA 14,0,5,16,7,5
1120 DATA 19,0,6,20,1,6,20,2,6,19,3,6,1
9,4,6,20,5,6,20,6,6,19,7,6
1130 DATA 20,1,7,20,2,7,20,5,7,20,6,7
1140 DATA 30
1150 DATA 18,3,0,18,4,0,18,5,0
1160 DATA 18,3,1,18,4,1,18,5,1
1170 DATA 14,0,2,18,4,2
1180 DATA 14,0,3,20,2,3,20,3,3,20,4,3,2
0,5,3,20,6,3
1190 DATA 14,0,4,16,1,4,20,3,4,20,4,4,2
0,5,4,16,7,4
1200 DATA 14,0,5,20,3,5,20,5,5
1210 DATA 14,0,6,20,2,6,20,3,6,20,5,6
1220 DATA 14,0,7;20,5,7,20,6,7
1230 DEFPROCWindow(Y,H,C)
1240 VDU24,0;Y;1272;H;
1250 GCOLO,128+C:CLG
1260 VDU24,16;Y+12;1256;H-12;
1270 GCOLO,128:CLG
1280 VDU26:ENDPROC
1290 DEFPROCInitScreen
1300 LOCAL A%:COLOUR128:COLOUR3
1310 PROCWindow(0,252,1)
1320 GCOLO,3:VDU5:MOVE 96,1020:PRINT"Ar
ena":MOVE 128,984:PRINT"6502":MOVE 856,1
020:PRINT"Arena":MOVE 888,984:PRINT"6502
":VDU4
1330 PRINTTAB(3,25)"Lives"
1340 PRINTTAB(12,25)"Score"
1350 PRINTTAB(12,28)"Level"
1360 A%=12:X%=4:Y%=223:CALL&2E00
1370 A%=13:X%=4:Y%=239:CALL&2E00
1380 ENDPROC
1390 DEFPROCStatusDead
1400 LOCAL A%:COLOUR128:COLOUR7
1410 PRINTTAB(2,30);SPC(8)
1420 PRINTTAB(2,28);SPC(8)
1430 MOVE 480,184:GCOLO,128:VDU5,127,12
7,127,127,4
1440 A%=0:X%=15:Y%=209
1450 FORI%=1 TOLive%
1460 CALL&2E00:X%=X%+5
1470 NEXT:ENDPROC
1480 DEFPROCStatus
1490 COLOUR128:COLOUR7
1500 PRINTTAB(12,26);RIGHT$("00000"+STR
$Score%,5)
1510 PRINTTAB(13,29);RIGHT$("000"+STR$L
evel%,3)
1520 ENDPROC
1530 DEFPROCInitGame
1540 Live%=3:Score%=0
1550 Level%=1
1560 PROCStatusDead
1570 ?&110A=FALSE:?&110D=FALSE
1580 ENDPROC
1590 DEFPROCInitLife
1600 Type=(Level%-1) MOD 14
1610 ?&1100=FALSE
1620 ?&1106=FALSE:?&1107=FALSE
1630 Even%=((Type AND1)=0)
1640 GCOLO,2:FORX%=0TO15STEP8:MOVE512+X
%,948:DRAW512+X%,1024:MOVE760-X%,948:DRA
W760-X%,1024:NEXT
1650 PROCWindow(268,948,2)
1660 GCOLO,0
1670 FORY%=0TO11STEP4:MOVE528,948-Y%:DR
AW744,948-Y%:NEXT
1680 PROCGen
1690 ?&126F=0:?&126E=TRUE
1700 ?&1102=38:?&1103=1
1710 ?&1108=TRUE
1720 ?&1109=0
1730 ?&110B=-3:?&110C=0
1740 IF?&110D<7 ?&110E=RND(250)
1750 IF?&110A<7 ?&110F=RND(250)
1760 FORI%=0TO34:I%?&1249=0:NEXT
1770 PROCStatus
1780 ENDPROC
1790 DEFPROCDead
1800 ?&110A=0:?&110D=0
1810 Live%=Live%-1
1820 PROCStatusDead
1830 ENDPROC
1840 DEFPROCEnter
1850 IFINKEY-99 ?&126F=255
1860 IF?&1103>19 ?&126E=FALSE:?&126F=0:
GCOLO,2:FORY%=0TO11STEP4:MOVE528,948-Y%:
DRAW744,948-Y%:NEXT
1870 ENDPROC
1880 DEFPROCGameOver
1890 PROCStatusDead
1900 IFScore%>HiScore%HiScore%=Score%
1910 COLOUR5
1920 PRINTTAB(5,12)"High Score"
1930 COLOUR6
1940 PRINTTAB(7,14);RIGHT$("000000"+STR
$HiScore%,6)
1950 COLOUR8
1960 PRINTTAB(1,22)"Hit Space  to play"
1970 *FX15
1980 REPEATUNTILGET=32
1990 ENDPROC
```

```
  10 =    0 0
  20 =    0 0
  30 =    0 0
  40 = D861 1
  50 = 3908 3
  60 = E9F5 B
  70 = 3090 6
  80 = BFBA 5
  90 = ADA0 A
 100 = BFBA 9
 110 = C6E4 7
 120 = DC98 F
 130 = BFBA F
 140 = 173E E
 150 = 8B19 3
 160 = 61AE D
 170 = 627E B
 180 = C85D 7
 190 = 3F26 F
 200 = 51CA D
 210 = 5B2C 9
 220 = A6C7 A
 230 = F793 8
 240 = DD81 7
 250 = 56BA 5
 260 =  CF2 A
 270 = 57C5 9
 280 = 9EAC 4
 290 = B9BD E
 300 = 53CE 3
 310 =  302 6
 320 = 6404 2
 330 = E6D3 0
 340 = 775A 3
 350 = 68D2 4
 360 = ED0F E
 370 = 8537 1
 380 = DFE2 2
 390 = EA7C E
 400 = BD91 6
 410 = FDDC F
 420 = 5F5D A
 430 = 5909 3
 440 = 8AE8 9
 450 = 605F F
 460 = 89F5 3
 470 = D3E7 A
 480 = C140 3
 490 = C961 0
 500 = CEFE 2
 510 = 5522 F
 520 = 5213 6
 530 = E531 4
 540 = 9535 9
 550 = 2729 C
 560 = B273 9
 570 = ADF4 5
 580 = 72BB 8
 590 = 983D C
 600 = 9AEE C
 610 = C961 D
 620 = CEFE E
 630 = 5522 7
 640 = 9967 C
 650 = 2C83 6
 660 = 5285 C
 670 = ED0F 3
 680 = A57A 6
 690 = C6B7 C
 700 = A9C0 E
 710 = 9063 B
 720 = 2985 F
 730 = 18E9 A
 740 = AFD3 9
 750 = 79E5 1
 760 = 1411 5
 770 = F007 6
 780 = 88F0 D
 790 = 4D1E E
 800 = 7A86 3
 810 = 2E46 1
 820 = 2720 9
 830 = 1EE6 B
 840 = 74F9 2
 850 = 701A 1
 860 = EB85 6
 870 = 7ED8 D
 880 = 2E3D 4
 890 =  355 5
 900 =  762 0
 910 = 5E45 3
 920 = A1B0 9
 930 = 2F4A 2
 940 = A581 B
 950 = DD3C 1
 960 = 53C6 4
 970 = E9BA 9
 980 = 2720 C
 990 = CC40 1
1000 = 4E87 4
1010 = B26A E
1020 = 8F29 9
1030 = A400 C
1040 = 4448 B
1050 = 8682 C
1060 =  762 D
1070 = F9F5 F
1080 = 9F50 B
1090 = 91F2 D
1100 = 1763 8
1110 = 597A E
1120 = 8846 F
1130 = 2309 2
1140 =  762 0
1150 = 4CE8 1
1160 = B5E6 3
1170 = 787D 5
1180 =  775 F
1190 = EBE9 D
1200 = 8C80 0
1210 =  45F 5
1220 = 4452 E
1230 = 21FC D
1240 = 79C8 9
1250 = E467 1
1260 = 795A E
1270 = 1CC7 2
1280 = EF20 B
1290 = 6528 A
1300 = 9005 3
1310 = BEE4 A
1320 = 851F 3
1330 = 2DDD 4
1340 = 6FC2 8
1350 = B748 8
1360 = F6CC C
1370 = B920 F
1380 = ED0F F
1390 = 1D8E 3
1400 = D081 1
1410 = B58E 1
1420 = 61F0 0
1430 = 183A D
1440 = 65D5 4
1450 = 30C1 F
1460 =  C29 B
1470 = E531 1
1480 = 97F8 8
1490 = 6437 C
1500 = 4103 4
1510 = AE2D 5
1520 = ED0F 8
1530 = 2723 1
1540 = BAE9 A
1550 = F141 2
1560 = 4836 9
1570 = CDF1 6
1580 = ED0F 8
1590 = 4C67 4
1600 = 7531 F
1610 = 8352 D
1620 = C052 D
1630 = 5131 F
1640 = DE0D 4
1650 = 6461 8
1660 = 130E 3
1670 =  98F 5
1680 = 93AF 6
1690 = 4B1F 1
1700 = 4C59 6
1710 = 9988 E
1720 = AE19 1
1730 = 18BF 1
1740 = 4B70 8
1750 = D06F F
1760 = 4AEF 2
1770 = F779 C
1780 = ED0F 5
1790 = 51ED B
1800 = BF46 7
1810 = 6A84 E
1820 = 4836 6
1830 = ED0F 7
1840 = D6ED 4
1850 = B9EE 4
1860 = 1E99 1
1870 = ED0F 3
1880 = 333E A
1890 = 4836 6
1900 = D490 3
1910 = A9CD 9
1920 = F856 9
1930 = 99AE 9
1940 = A71F 1
1950 = 7860 2
1960 = 3D2C 4
1970 = A022 D
1980 = 5B81 1
1990 = ED0F A
```

Get it right

The Playground

Teach Freddy Teddy to play in the park! Click on icons, eg, 'get on swing' and Freddy does! Control is either in 'immediate' *(he does it straight away)* or 'procedure' *(programmable)* mode. Inc. digitised speech and colour poem book with song. *An ideal pre-TinyLogo activity!*

The latest Freddy Teddy title.

Archimedes & A3/5000.

Only £29.95 ex VAT. Free site licence!

IMAGINE

"Imagine ... could well become the default art pack for schools" *(Micro User, Oct. '91)*

Archimedes & A3/5000 Only £39.95 ex VAT. Ages 9 to adult. FREE site licence!

Imagine has all the usual ART features + special MATHS tools like symmetrical painting, tessellations, turtlegraphics + twin screens, built-in help, user-definable menus, etc. *Why pay twice the price for something half as good?*

FREE CATALOGUE

The FREDDY TEDDY *series for infants now includes* **FREDDY TEDDY, FREDDY'S ADVENTURE, THE PLAYGROUND, THE PUDDLE/THE WARDROBE** *and* **THE ZOO/BALLOONS.** Other best-selling titles include **GIANT KILLER**, the **GIANT KILLER SUPPORT DISC, PUNCTUATE!** and new versions of **TINYLOGO/TINYDRAW** (easy art and 'logo' for infants), the amazing **ART MACHINE** packs, **ASTRO, POLYOMINOES,** and **WHALE FACTS**. (Also available for *BBC and Master Compact)*

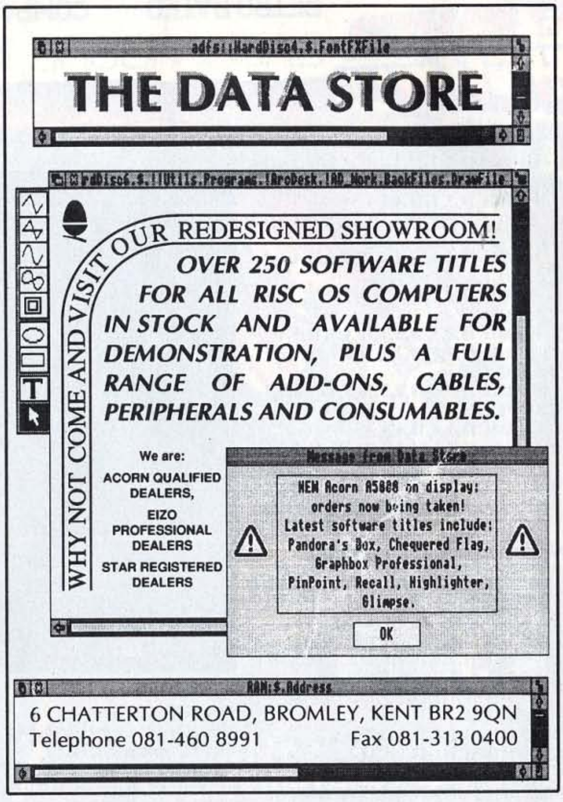
DON'T FORGET WE STILL SELL **CLASSIC ADVENTURES** LIKE **'LAST DAYS OF DOOM', 'ACHETON', 'AVON/MURDAC'**, etc. AND COMING SOON - **SPY SNATCHER!**

PO Box 39
Stilton
Peterborough
Cambs PE7 3RL

TOPOLOGIKA

SEE US AT BETT '92

Official Orders
ACCESS
& VISA
tel & fax
0733 244682



adfs::HardDisc4.$.FontFXFile

THE DATA STORE

rdDisc4.$.!Utils.Programs.!ArcDesk.!AD_Work.BackFiles.DrawFile

WHY NOT COME AND VISIT OUR REDESIGNED SHOWROOM!

OVER 250 SOFTWARE TITLES FOR ALL RISC OS COMPUTERS IN STOCK AND AVAILABLE FOR DEMONSTRATION, PLUS A FULL RANGE OF ADD-ONS, CABLES, PERIPHERALS AND CONSUMABLES.

We are:
ACORN QUALIFIED DEALERS,
EIZO PROFESSIONAL DEALERS
STAR REGISTERED DEALERS

Message from Data Store

NEW Acorn A5000 on display: orders now being taken! Latest software titles include: Pandora's Box, Chequered Flag, Graphbox Professional, PinPoint, Recall, Highlighter, Glimpse.

6 CHATTERTON ROAD, BROMLEY, KENT BR2 9QN
Telephone 081-460 8991 Fax 081-313 0400

PINEAPPLE SOFTWARE

The Pineapple Colour Video Digitiser Big Price Reductions!!!

Since we originally introduced the Pineapple Video Digitiser almost two years ago we have not needed to modify the design of the hardware in any respects. However, the software has been continually improved to the point where the quality and quantity of software supplied is second to none.

Now, because of the large number of sales, we are unable to offer a big price reduction which makes colour digitising available to everybody. Also, because we are so confident that you will find Pineapple Digitiser superior to anything else available, we are happy to offer our Digitisers on 7 days free approval so that you can see for yourself the power of our software.

Some of the features of the Pineapple Digitiser, many of which are still exclusive are as follows:-

☆ 16 bit true R G B storage in 256k ram.
☆ Sequences of frames of a moving picture can be grabbed and stored in memory. Up to 30 frames in a 1 mb computer, 200 - 300 frames in larger computers!!
☆ Full screen area normally viewed on a TV set is grabbed in full.
☆ Images may be processed using our own high speed software routines or Acorn's Change FSI software.
☆ Quite simply the most powerful and easily used zooming and cropping routines available with any processing package.
☆ Two independent multitasking applications supplied, Non-multitasking software allows digitising without windows for adding still images to videos.
☆ Our hardware does not use interrupts so other applications run at full speed.
☆ Latest software includes built-in print routines. (Existing owners please contact us for a free update).
☆ Hard looking synchronising circuits for best results from video recordings.
☆ Available in a stand alone box for use with A3000. In this mode it can also be used with 300/400/500 series computers only occupying one expansion slot.
☆ Free seven day trial.

A300/400/500 £199.00 A3000/Boxed £235.00

Pineapple PAL Coder

The Pineapple PAL Coder is a stand alone unit which provides a coded video signal which can be recorder onto a VHS recorder or fed to a monitor with coded input.

The unit is inserted in the lead to the R G B monitor and provides an R G B output for the monitor together with a full specification PAL coded output. A second version provides a standard coded output also provides an S-VHS output for improved quality recordings on S-VHS recorders.

Features:-

☆ External to computer - no expansion slots used.
☆ Complete sync pulse regeneration providing a full CCIR sync waveform for best results on VHS recorders.
☆ Selectable to work with 625 interlaced screen modes or 624 line non-interlaced modes.

Standard Version £69.00 S-VHS Version £79.00

BBC PCB Designer

This ever popular Rom based PCB designer is suitable for all BBC micros. It's fast high density 111 scale print routine allows prototype boards to be made directly from a printout, and a 211 scale print may also be used to produce professional quality boards. A second Eprom is optionally available to add a powerful auto-track routing facility to the program. This utilises a 'rats-nest" input routine and allows any component to be 'picked-up' and moved around the board without having to re-specify component interconnections.
The full auto-route facilities are available even on an un-expanded model 'B' computer. An archimedes version is available as a free upgrade to existing BBC owners or at a similar price to the BBC version.

'PCB Auto-route is remarkable. No similar software comes near the price.' Acorn User - August 88.

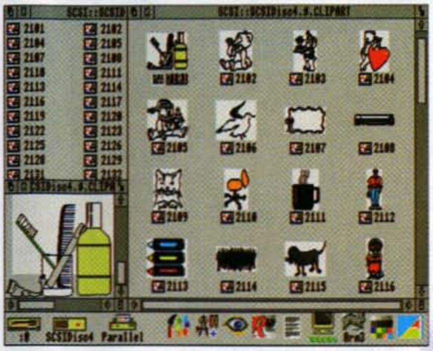
Manual track routing	**£55.00**
Auto track routing	**£85.00**
Plotter Driver	**£35.00**

Please add 17.5% VAT to all prices. Postage and Packing free

VISA

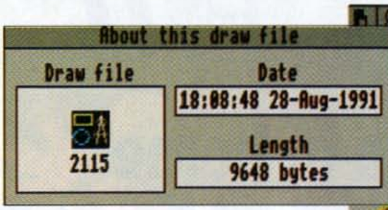
39, BROWNLEA GARDENS, SEVEN KINGS, ILFORD, ESSEX, IG3 9NL.
Tel 081 599 1476 Fax 081 598 2343

Access


SCSI::SCSID
SCSI::SCSIDisc4.$.CLIPART
2101
2102
2104
2105
2107
2108
2110
2111
2113
2114
2116
2117
2119
2120
2122
2123
2125
2126
2128
2129
2131
2132
SCSIDisc4.$.CLIPA
2103
2106
2109
2112
2115
:0
SCSIDisc4
Parallel
Draw2

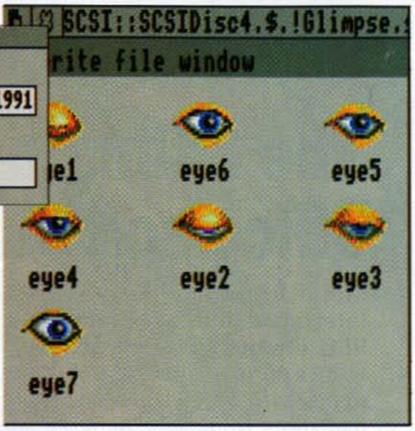
Taking a quick look

Product: !Glimpse
Price: £8.50
Supplier: Sherston Software, Swan Barton, Sherston, Malmesbury, Wiltshire SN16 0LH.
Tel: 0666 840433
Requirements: Risc OS


About this draw file

Draw file: 2115
Date: 18:08:48 28-Aug-1991
Length: 9648 bytes

What you need to know


SCSI::SCSIDisc4.$.!Glimpse.
rite file window
e1
eye6
eye5
eye4
eye2
eye3
eye7

The eye graphics

can see you

Steve Bruntlett takes a peek at a useful new package for viewing clip art – !Glimpse

THIS is just what we've been waiting for. If you've started to buy clip art from various sources for use in DTP and so on, you'll know that there's nothing more aggravating than having to load each file into !Paint or !Draw to see what it is.

If you've ever bought a multiple disc set of clip art you'll know that it takes forever to view all the images and if they are numbered but not illustrated – as is the case with some PD clip art – you can never remember the number for the particular piece you need.

You could always rename your clip art files or if you've a week spare, print them all out for reference. A much more sensible option is to use a viewer such as those supplied with clip art libraries but it's almost as quick to load the files into the relevant application.

What you need is a program which not only displays your clip art but allows you to transfer it from the resulting visual display directly into an application.

!Glimpse allows you to drop a directory of clip art – sprites or draw files – on to the !Glimpse icon and display the clip art in miniature form in a window.

Eye to eye

It comes with a slim professionally produced A5 manual which clearly outlines the working procedure of the application. There is a useful page at the back entitled: *"For those who don't want to read this manual"*, which is a model of clarity. As with other Sherston software, !Glimpse is available on approval as well as in site licence version.

When run, !Glimpse installs itself on the icon bar as you'd expect. Dropping a directory of clip art onto the !Glimpse icon is an experience in itself. Once the clip art is fully loaded the closed eye !Glimpse icon opens slowly and smoothly while the !Glimpse display window appears. I've seen icons which change in use but this is the first animated icon I have seen on the Archimedes.

The only thing I was worried about is that the lettering on screen changes size at times and moving a window sometimes leaves a dotted orange window outline on the screen.

The !Glimpse window shows !Draw files and !Paint files, but also shows !Sprite files as directories which can be opened independently. The menu allows you to display the root directory as well as ordering the clip art into size, date and type and gives information about files.

Transferring files to other applications can be accomplished by double-clicking or dragging the file icon on to the existing application window. Multiple !Glimpse windows can be used on screen and can be tucked away in a corner for the duration of a working session and brought to the front, if you lose them, by clicking the !Glimpse icon when needed. This saves re-drawing time.

Memory restrictions

The manual states that !Glimpse may find it hard to cope with directories containing lots of large !Draw, !Paint and !Sprite files if you haven't got a lot of memory. To give you some idea of what it can cope with, I loaded an entire disc of 59 pieces of clip art from Midnight Graphics in about five minutes.

Using an ARM3 and a hard disc it takes less than a minute. While five minutes might seem like a long time it takes considerably longer to load each picture in turn into its own application for viewing.

What you might do when you've loaded an entire disc full of clip art into !Glimpse is to grab the screen and print it out for future reference and keep it with your clip art. Loading directories with only a few clip art files takes no time at all.

Summing up

!Glimpse works well, does a very useful job and should be part of the software library of everyone who uses clip art.

POOCH
by
David
Standley
Fig &
Marrow
Pickle
SEVILLE
ORANGE
MARMALADE
RHUBARB
AND
GINGER
PRESERVE
PRESERVE
JAM
JELLY
PICKLE
CHUTNEY
MARMALADE
RHUBARB
AND
GINGER
PRESERVE
JAM
JAM

mini OFFICE II

The ultimate in home office software

mini
OFFICE
II
WORD PROCESSOR
DATABASE
SPREADSHEET
LABEL PRINTER
GRAPHICS
COMMUNICATIONS

Mini Office II offers the most comprehensive, integrated suite of programs ever written for the BBC, C64 and CPC computers. Whether you need to write a simple letter or produce elaborate business plans with spreadsheets and graphics or create mailshots from your database and label printer Mini Office II provides all you'll ever need.

The sample screenshots below illustrate just a few of the very wide range of features, many of which are usually restricted to software costing hundreds of pounds. The software is easy to use with helpful menus throughout offering a wealth of understandable functions. You also receive a comprehensive wire-bound manual which provides all the help you'll need.

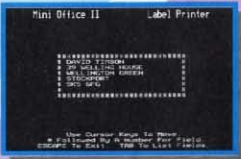
BBC B, B+	Cass	£15.99
BBC B, B+ (40T)	Disc 5.25"	£17.99
BBC B, B+ (80T)	Disc 5.25"	£17.99
BBC Master (40TADFS)	Disc 5.25"	£20.99
BBC Master (80TADFS)	Disc 5.25"	£20.99
BBC Master Compact	Disc 3.25"	£21.99
CPC 6128	Cass	£15.99
CPC 6128	Disc 3"	£20.99
C64/128	Cass	£17.99
C64/128	Disc 5.25"	£20.99

SIX powerful home and business modules in just *ONE* package:

- Wordprocessor
- Database
- Spreadsheet
- Label printer
- Business graphics
- Comms module

The ideal small business software – all at a price that simply can't be matched.

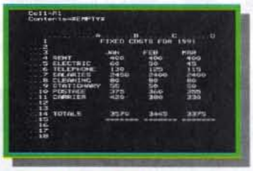
WORD PROCESSOR
Compose a letter, set the print-out options using menus or embedded commands, use the mail merge facility to produce personalised circulars.



```
Mini Office II          Label Printer

  DAVID TINSON
  39 WELLING HOUSE
  WELLINGTON GREEN
  STOCKPORT
  SK5 6FG

          Use Cursor Keys To Move
    # Followed By A Number For Field
  ESCAPE To Exit.   TAB To List Fields.
```

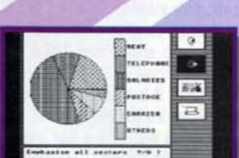
LABEL PRINTER
Design the layout of a label with the easy-to-use editor, select label size and sheet format, read in database files, print out in any quantity – and more!

DATABASE
Build up a versatile card index, use the flexible print out routine, do powerful multi-field sorting, perform all arithmetic functions, link with the word processor.



```
Cell=A1
Contents=EMPTY

          A        B        C        D
 1               FIXED COSTS FOR 1991
 2
 3                JAN      FEB      MAR
 4 RENT           400      400      400
 5 ELECTRIC       60       50       45
 6 TELEPHONE      130      125      115
 7 SALARIES       2450     2400     2400
 8 CLEANING       80       80       80
 9 STATIONARY     50       50       50
10 POSTAGE        375      360      355
11 CARRIER        420      380      330
12
13
14 TOTALS         3570     3445     3375
15               -------- -------- --------
16
17
18
```

SPREADSHEET
Prepare budgets or tables, total columns or rows with ease, copy formulae absolutely or relatively, view in either 40 or 80 column modes, recalculate automatically – and more!



GRAPHICS
Enter data directly or load data from the spreadsheet, produce pie charts, display bar charts side by side or stacked, overlay line graphs – and more!

> *"Tremendous value for money and its success is truly well deserved."* **– Zzap 64**
>
> *"Good enough to fulfil the entire software needs of many a small business!"* **– Amstrad Action**

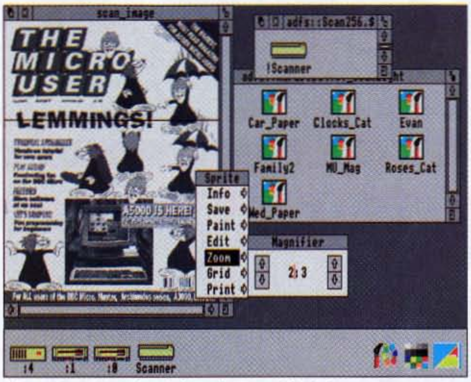
```
Mini Office II          Communications
```

COMMS MODULE
Using a modem you can access services such as Telecom Gold and bulletin boards to send electronic messages, download software and more!

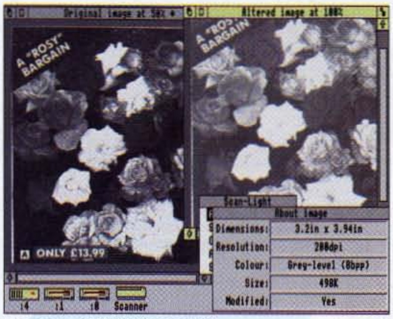
europress
SOFTWARE

Europa House, Adlington Park, Macclesfield, SK10 4NP
Telephone: 0625 859333

Credit card order hotline – Tel. 051-357 2961. Alternatively send a cheque with your choice of products clearly indicated to Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB.



Three scans cut and pasted together – spot the join



About Image
Dimensions: 3.2in x 3.94in
Resolution: 200dpi
Colour: Grey-level (8bpp)
Size: 498K
Modified: Yes

Roses are grey! Violets are grey!

Shed a little extra light

Terry Blunt discovers a way of livening up your DTP artwork

SCANLIGHT Junior 256 is an enhancement of Scanlight Junior. Indeed it's a very considerable improvement as both the scanner itself and the software have been changed.

The scanner, an A5 Mitsubishi unit, will resolve up to 256 grey levels at 400 dpi, and this without any fiddling, although for the maximum density scan length and width are reduced.

Even so, such a scan will produce over 1Mb of sprite data, so you will need at least 2Mb of memory to handle these high definition scans.

The software supplied with the scanner lets you modify the results – cropping the image, altering the shading, including the overall brightness and slope of the grey shades.

It also allows you to translate images from say, 256 grey levels (8 bits per pixel) to 16 levels (4bpp). I was surprised at how presentable such coarse steps can be in the right circumstances.

You can set 176 grey levels, too. This is provided because Risc OS can't normally give 256 greys, as it really tries to give 256 colours, some of which will have identical apparent brightness levels.

The software also provides a sampling routine which goes a long way towards smoothing out dot interference patterns. These are an inevitable result of scanning dot-based pictures from magazines and newspapers.

Such sampling will also rescale the image, which gives the appearance of increasing the resolution.

Sampling can actually increase the number of grey levels. For instance, if you sample a 16 grey level sprite at 2 x 2 pixels, you end up with a 64 grey level image.

There is an edge enhancement facility. I didn't find this as easy to use as the rest, and think it is best suited to sharpening up line drawings and print.

Printing it out

Printing can be carried out directly from ScanLight Plus through the normal printer drivers. Results can be a little disappointing with a standard dot matrix, as the dithered dots that are used to represent the grey levels tend to be rather coarse.

A laser printer will give better results. Obviously you will get the best results from a modern imagesetter, but not many people have access to one.

If you already have ScanLight Junior, Computer Concepts can supply an upgrade at reduced cost. This consists of a new scanner and software, while you continue to use the existing, unaltered, expansion podule.

Practice, plus experimentation, is required to get the best results from ScanLight. However, the speed with which you can take a scan ensures that this doesn't become tedious.

Photographs will almost always be the best source material, monochrome being a little better than full colou.

One of the first attempts I made was with a colour family snapshot. This I scanned lengthways as it was just too wide for the scanner.

Using the software I then rotated it through 90 degrees, a process which was impressively fast. Rotation in !Paint is an absolute donkey by comparison.

With the picture the right way round I altered the grey levels to lighten it and bring out the detail.

The selection of slopes for this was quite adequate, although you can edit them if you wish – say should you want to darken only the middle range of shades.

Once I was satisfied with the overall results I copied the altered image back to the original. I then cropped it to remove a distracting shadow on the extreme left, so balancing the whole scene.

An original can be cropped and lightened

I was impressed with how quick and easy all these steps were, and all within the scanner software. You can see the before and after results in the two family sprites.

Easy retouching

Obviously, you can retouch the final image in !Paint, or in any of the many art packages available. By integrating the scanner and its software with your own ideas for layered pictures, collages and the like, the sky's the limit.

The other screen shots show the result of scans from a variety of different catalogues and newspapers. For the last example I took a set of three scans from the front cover of ***The Micro User*** then pasted them together in !Paint.

This goes to show that scan size need not be a limitation. You can see the joins, but I was working very quickly. With care you should be able to manage quite seamless results.

One niggle was the length of the scanner lead coming from the back of the Archie. I found that there wasn't much left for me to play with.

This presented problems when I tried to make a scan in the middle of a very large encyclopedia. Perhaps someone will come up with an extension lead.

The software will accept normal sprites as input as well as actual scans. So it is practical to move sprites from a variety of sources into the scanlight software so that it can be used to rotate, crop and adjust their grey scale, then save the modified sprite for further work.

Summing up

The new ScanLight package is fast and easy to use. It will particularly appeal to people who want to use the Archimedes as an artistic extension, without having to learn a lot of obscure technical jargon.

A5000 MEMORY UPGRADE

The ACS memory expansion board for the A5000 uses 4-layer PCB technology as specified by Acorn. All components are **surface mounted** using the latest technology to ensure reliability.

Price only £119 – Available NOW!
Beware of cheaper, 2-layer PCB upgrades...insist on quality from ACS

A3000 MEMORY UPGRADES

To complement our range of A5000 memory upgrades we have just released two high-quality A3000 upgrades, utilising Acorn-approved connectors to ensure the highest reliability. The 1Mb upgrade is fully expandable to 3Mb by removing the eight 1Mbit DRAMs from their sockets and replacing them with 4Mbit parts. Using only 8 RAM chips power consumption for the 3Mb upgrade is within Acorn's specification.

1Mb upgrade £59   3Mb upgrade £139

ACCOUNTING SOFTWARE for the Archimedes

Advanced Computer Services are proud to announce their forthcoming accountancy package for the Archimedes range of computers. After two years of development the package is nearing completion. Release date due March 1992.

Features include:-
- Fully Multi-tasking and RISC-OS compatible
- Audit trail to trial balance
- Stock control facilities, including re-ordering levels
- VAT cash-accounting scheme may be used
- Price-list generation and other stock control functions
- Purchase order generation facility (with numbering)
- **Full multi-user access over Acorn's low-cost Econet network**
- Full invoicing and credit-note generation facilities
- Multiple bank account handling
- Statement printing and other debt-control functions
- Quotation production on-screen with storage & retrieval
- Full order processing facilities, from stock ordering to invoicing

This package is the only Archimedes-based accounting solution to rival the big, multi-user PC-based systems. Who needs Ethernet, Novell and large PCs when the superior Archimedes can take care of things at a much lower price?

Further details are available from ACS on request

ACS
Advanced Computer Services
(Europe) Ltd

All prices exclude VAT,
but include carriage.
Access and Visa welcome

Advanced Computer Services (Europe) Ltd
75 Wellington Street
Luton, Beds., LU1 5AA
Tel: (0582) 20604. Fax: (0582) 480833

PDSview and PDSmovie

EXPLORE NEW WORLDS

...us at BETT

General purpose image processor
Featuring the Planetary Data System
£99.50 ex VAT
Planetary Data System
Thousands of spacecraft images now available from us on CD-ROM including the entire Voyager databank.
(may be viewed and processed without the emulator)

!Orrery
BETT AWARD 1991
Simulation of the Solar System £95.00 ex VAT

FaxScan
Scanning Interface for Amstrad FAX
£99.50 ex VAT
Or half price with Fax machine.

Weather Satellite Decoding and Reception Equipment
(BETT Gold award 1990)
Complete stations from
£575 ex VAT

Write or phone
for more details about
our exciting range of
Archimedes products

spacetech
space science resources

21 West Wools, Portland, Dorset DT5 2EA. U.K. Tel 0305 822753 Fax. 0305 860483

THE MICRO USER

NEWSAGENTS ORDER

Please reserve a copy of The Micro User magazine every month until further notice

☐ I will collect
☐ I would like it delivered to my home

Name...

Address ....

....

.... Postcode ....

Note to Newsagent: Micro User should be available from your local wholesaler. If not contact the Circulation Manager, David Wren on 0625 878888.

WATERLOO

Could you have won the Battle of Waterloo ?

Take the role of commmander-in-chief in this unique and dramatic simulation. View the battlefield in 3D, issue orders in English, watch the battle develop, and hear the thunder of cannons and the whistle of shells as the armies clash.

"It certainly conveys the flavour of the period, giving one the feeling of controlling a vast, unwieldy army on a panoramic landscape" - Popular Computing Weekly

"This is the most complete and realistic wargame I have played" - Amiga Computing

"Quite simply, Waterloo is brilliant" - ST Format

.....Now available on the ARCHIMEDES, price £25.95 (including 40 page manual, colour map, VAT and P&P).
Send PO/Cheque to:

TURCAN RESEARCH SYSTEMS LTD.,
83 GREENCROFT GARDENS, LONDON NW6 3LJ

Tel: (071) 625 8455 Dealer enquiries welcome. Programme Author: Dr Peter Turcan.

VOLTMACE

DELTA CAT ARCHIMEDES JOYSTICK
The lowest cost and most versatile of the Archimedes and A3000 joysticks. Plugs straight into the mouse port and runs mouse driven programs and other software with special DELTA-CAT routines.
£34.95

MOUSE PORT SPLITTER BOX
Allows a DELTA CAT or other device to be plugged in as well as a mouse. Saves socket damage and saves lifting the A3000 each time a change is needed.
£19.95

DELTA 3B SINGLE AND DELTA 3B TWIN
The true analogue joystick for the BBC B and Master. Also for the ARCHIMEDES or A3000 with analogue adaptor. (Order DELTA 3BA for ARCHIMEDES the plug hood is different).

DELTA 3B SINGLE or DELTA 3BA SINGLE	**£16.95**
DELTA 3B TWIN (Fits either BBC or ARC)	**£24.95**
DELTA 3S Switched joystick for MASTER COMPACT	**£16.95**

SPECIAL OFFFER

40 TRACK DS/DD DISC DRIVE MECHANISMS	**£45.00**
3.5" DISK MECHANISMS ON 5.25" CARRIERS	**£45.00**

Prices include VAT and P&P (UK)

Unit 9, Bondor Business Centre, London Road,
Baldock, Herts, SG7 6NG. Telephone (0462) 894410

WeServe of Hampshire Best for service

VISIT OUR SHOWROOMS. *SEE BEFORE YOU BUY*

Taxan 795
Multivision with VIDC
£389 + VAT

Canon LBP-4+
4ppm Laser with cable & paper
£575 + VAT

Canon BJ-10ex
360dpi Ink jet with cable & paper
£194.89 + VAT

Philips CM8833 Mk2
Colour Monitor with cable
£219.00 (£186.38 + VAT)

Taxan 775
Multisync Monitor with cable
£369.00 + VAT

PRINTER RIBBONS

	Ex VAT	Inc VAT
LX800 & FX800 Print Ribbon	£2.29	£2.69
LC10 Print Ribbon	£4.00	£4.70
120D Print Ribbon	£4.00	£4.70
Taxan/Canon Ribbon	£3.22	£3.78
Juki 6100 Print Ribbon	£1.60	£1.88

Phone for full range 100 + original & Compatible ribbons - Bulk discounts

8271
disk controller chip
£38.26 + VAT

UPGRADES/8271

	Ex VAT	Inc VAT
27128A 250nS 12.5v	£3.00	£3.52
8271 controller	£38.26	£44.95
6264 LP 150nS	£3.00	£3.53
Acorn 8271 DFS	£44.26	£52.00
Acorn 1770 DFS	£45.11	£53.00
A3 Concept Keyboard	£139.00	£163.32
Master Keyboard	£50.21	£59.00
Acorn Tracker Ball	£38.30	£45.00

NEW A3000
Learning Curve
+ Printer + Monitor & Stand
£999.00 inc VAT

A5000 + LC
+ Printer + Monitor
£1765.00 (£1502.13 + VAT)

A3000 + 2m RAM
£658.00 (£560.00 + VAT)

A3000 LC + 2m RAM
£740.25 (£630.00 + VAT)

NEW Citizen 224
Enhanced **24-pin** printer, optional **colour** with easy to use control panel
2 year warranty. Price with cable & paper
£229 inc VAT
Optional Colour Kit £26.00 with printer

Swift 24E
Enhanced 24 pin. Colour printer
2 year warranty + cable & paper
£275.00 inc VAT

Star

	Inc VAT
LC20 9 pin	£135.00
LC200 9 pin col.	£189.00
LC2410 24 pin	£182.00
LC20200 24 pin	£219.00
LC24200 Colour	£275.00

Prices include cable & paper

Citizen 120D+
with cable and paper
£128.00 (£108.94 + VAT)

ROMS/SOFTWARE

	Ex VAT	Inc VAT
Inter-Word Rom	35.75	42.00
Spell Master Rom	40.00	47.00
View 3 Rom	40.00	47.00
DTP-Acorn	106.38	125.00
Impressions II	134.47	158.00

Phone for BBC/Archimedes Software catalogue 100's of titles inc. Educate

A3000 TV Modulator
£39.00 (£33.19 + VAT)

20M HARD DISC
£139.83 (£119.00 + VAT)

Sony
DISKETTES
SONY branded
(100% certified error free)

	Inc. VAT
10 3.5" DS/DD 135 tpi	£7.50
50 3.5" DS/DD 135 tpi	£32.31
100 3.5" DS/DD 135 tpi	£59.93
1k 3.5" DS/DD 135 tpi	£540.50

DISKETTES
(lifetime warranty) SONY bulk
(100% certified error free)

	Inc. VAT
10 3.5" DS/DD 135 tpi	£5.95
50 3.5" DS/DD 135 tpi	£19.80
100 3.5" DS/DD 135 tpi	£37.95
250 3.5" DS/DD 135 tpi	£88.42
1k 3.5" DS/DD 135 tpi	£339.58
50 x 3.5" Disk Box with lock	£5.99
100 x 3.5" Disk Box with lock	£7.50

Phone for our 48 page catalogue
EDUCATIONAL AND GOVERNMENT ORDERS WELCOME
All products have a 30 day money back & 12 month warranty.
Prices subject to variation without prior notification.
Established 6 years. 3 minutes from M27 Junction 11.
Free parking. Open 9 to 5.30 Mon. to Friday. 9 to 2 on Saturday.
Postage 94p (80p + VAT) Securicor £6.46 (£5.50 + VAT).

WeServe
Larger items delivered
by Securicor

Micro Dept
40-42 West Street,
Portchester, Hants.
PO16 9UW
Tel: 0705 325354

BBC BARGAINS

TERMI2/COMMUNICATOR

REDUCED TO £10.00

Terminal emulation of VT52 (Termi2) or VT100 (Communicator) pack includes software on ROM and a full manual.

Termi2 £10.00 reduced from £29.00
Communicator £10.00 reduced from £60.00

SPEECH SYSTEM

REDUCED TO £10.00

Teach your BBC Micro to talk - the clearest speech available for the BBC. Simply type the words and the computer will speak them - or create words phonetically. Pack includes Speech ROM, Text to Speech and speech processor - all you need to create speech. Only suitable for the BBC model B and B+.

£10.00 reduced from £30.00

INTER-BASE

REDUCED TO £20.00

Comprehensive and flexible database - part of the popular Inter series. Based round a programming language but including a powerful card index program for your own ready to use database, with a wide variety of search and support commands. Only suitable for Acorn DFS 1.2 or later and other Acorn compatible filing systems.

£20.00 reduced from £60.00

ACCELERATOR

REDUCED TO £10.00

The most comprehensive compiler available on the BBC. Pack includes 2 ROMs, disc utility, full manual and quick reference card. Not suitable for use with early Acorn DFS on the Master (ADFS is OK).

£10.00 reduced from £30.00

Computer Concepts Ltd
Telephone: 0442 63933 Fax: 0442 231632

Please send your completed coupon to:
Computer Concepts Ltd., Gaddesden Place, Hemel Hempstead, Herts HP2 6EX.

Please send me pack(s) of @ £

Name

Address

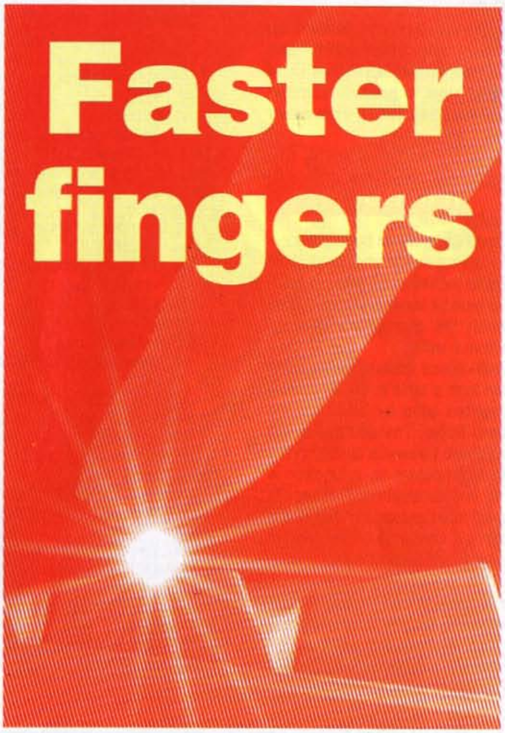
☐ I enclose a cheque for £ made payable to Computer Concepts Ltd.

☐ Please debit my Access/Visa/Master Card* * Delete as applicable

Card No: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

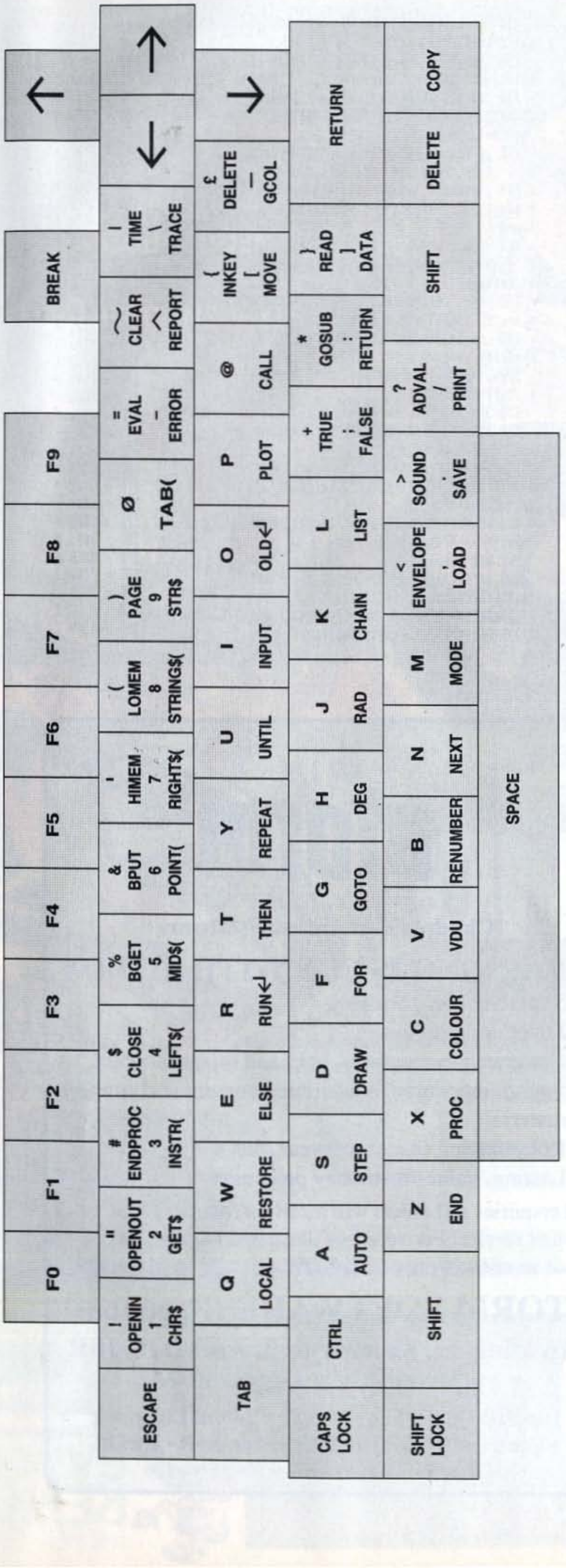
Expiry Date:

ALL PRICES SUBJECT TO VAT AT 17.5%



Faster fingers

Speed up the entry of those long programs with Stephen Ramplin's clever utility


F0
F1
F2
F3
F4
F5
F6
F7
F8
F9
BREAK
ESCAPE
! OPENIN 1 CHR$
" OPENOUT 2 GET$
# ENDPROC 3 INSTR(
$ CLOSE 4 LEFT$(
% BGET 5 MID$(
& BPUT 6 POINT(
' HIMEM 7 RIGHT$(
(LOMEM 8 STRING$(
) PAGE 9 STR$
Ø TAB(
= EVAL - ERROR
~ CLEAR ^ REPORT
| TIME \ TRACE
TAB
Q LOCAL
W RESTORE
E ELSE
R RUN↵
T THEN
Y REPEAT
U UNTIL
I INPUT
O OLD↵
P PLOT
@ CALL
{ INKEY [MOVE
£ DELETE — GCOL
CAPS LOCK
CTRL
A AUTO
S STEP
D DRAW
F FOR
G GOTO
H DEG
J RAD
K CHAIN
L LIST
+ TRUE ; FALSE
* GOSUB : RETURN
} READ] DATA
RETURN
SHIFT LOCK
SHIFT
Z END
X PROC
C COLOUR
V VDU
B RENUMBER
N NEXT
M MODE
< ENVELOPE , LOAD
> SOUND . SAVE
? ADVAL / PRINT
SHIFT
DELETE
COPY
SPACE

FOR Electron users who have changed their machines to one of the BBC range perhaps the saddest loss is the lack of the single keypress entry of common Basic keywords.

On an Electron, pressing Caps lock and a letter key enters a keyword, saving time, wear and tear on the fingers, and removing the chance of spelling errors. With this utility the 8-bit BBC Micro can now live up to the Electron. However, not only does it implement the system found on an Electron, it also offers an extended range of keywords.

Type in the listing and ensure you've made no typing errors using the checksums. When RUN the program generates a file called *Qtype* which is saved to tape or disc. This is the actual utility. In future, to use Quick Type enter *Qtype – or *RUN Qtype for tape users – and it will load.

Once the utility is installed keywords may be entered by typing the characters which correspond to them. For example, if you type the letter A followed by Shift+Space, the word AUTO will appear.

A full list of keys and corresponding keywords are shown here. Notice that because Quick Type is designed to work on all the BBC Micros – and the Electron – keywords only found in later versions of Basic have been avoided.

Also, the older version of Basic will produce the keyword OPENIN instead of OPENUP from the pling.

In order to make the contents of the table easier to remember there are some patterns. The number keys produce keywords which contain either a dollar or open bracket. Generally, the symbols above the number keys produce file handling or Basic pointer keywords. The minus, hat and back slash produce error handling commands. EVAL is produced by the equals sign.

The plus/semicolon key produces the related commands TRUE and FALSE, while asterisk/colon key produces GOSUB and RETURN and the shifted/unshifted close square bracket key produces READ and DATA. ►

➤
Finally, the less than and greater than keys produce ENVELOPE and SOUND respectively. Using the same or similar keys to produce complementary keywords makes them easier to recall.

How it works

The insert character in buffer vector – INSV – is intercepted and re-vectored to point to the utility. So when a character is typed it is examined and used to identify the appropriate keyword token from a table.

If Shift+Space follows, the keyword is taken from a table in the Basic rom and inserted letter by letter into the keyboard buffer. The address of the table of Basic keywords differs on the different computers so a function is used to find its location. This results in a conditional assembly: That is, the program will only work on the type of computer which assembled it.

● *So now there's no excuse for not typing in that really long program from* The Micro User. *With Quick Type it will be finished in half the time.*

```
   10 REM Quick Type
   20 REM By Stephen Ramplin
   30 REM (c) The Micro User
   40 *KEY10 OLD|MRUN|M
   50 *FX200
   60 MODE135
   70 chr%=&80:addr%=&81:tkn%=&83:temp%=
&84:insv=&22A:osbyte=&FFF4:oscli=&FFF7:o
ldv=!insv AND&FFFF:base%=FNBase:PROCasse
mble:IFoldv=qtype THEN CALL!-4
   80 *FX18
   90 PRINT'"Press SPACE to save code as
 Qtype":*FX21
  100 REPEATUNTILGET=32:$&700="SAVE Qtyp
e 900 "+STR$~P%:X%=0:Y%=7:CALLoscli
  110 CALLinit
  120 END
  130 DEFPROCassemble
  140 FORpass%=0TO2STEP2:P%=&900:[OPTpas
s%
  150 .init LDX#qtype MOD256:LDY#qtype D
IV256:SEI:STXinsv:STYinsv+1:CLI:RTS
  160 .qtype PHP:STA chr%:TXA:BNE not_ke
y:PHA:TYA:PHA:LDA chr%:CMP#ASC" ":BEQ ch
eck:STX tkn%
  170 .findtkn CMP#ASC"!":BCC exit:CMP#A
SC"`"+1:BCS others:SEC:SBC#ASC"!":BPL ge
ttkn
  180 .others AND#&DF:CMP#ASC"[":BCC low
er:CMP#ASC"_":BCS exit:SEC:SBC#27:BPL ge
ttkn
  190 .lower SEC:SBC#ASC"!":.gettkn TAX:
LDA table,X:STA tkn%
  200 .exit PLA:TAY:PLA:.not_key TAX:LDA
 chr%:PLP:JMP oldv
  210 .check LDA#&79:LDX#&80:JSR osbyte:
TXA:BPL exit:LDA tkn%:BEQ exit
  220 .reset LDX#oldv MOD256:LDY#oldv DI
V256:SEI:STXinsv:STYinsv+1:CLI
  230 .delete LDA#&7F:JSR insert:LDA#bas
e% MOD256:STA addr%:LDA#base% DIV256:STA
 addr%+1
  240 .findword LDY#&FF:.loop1 INY:LDA(a
ddr%),Y:BPL loop1:CMP tkn%:BEQ found
  250 .incaddr% INY:TYA:SEC:ADC addr%:ST
A addr%:BCC findword:INC addr%+1:BCS fin
dword
  260 .found LDY#0:.loop2 LDA(addr%),Y:B
MI done:STY temp%:JSR insert:LDY temp%:I
NY:BNEloop2
  270 .done CMP#&CB:BEQ cr:CMP#&F9:BNE n
o_cr:.cr LDA#13:JSR insert
  280 .no_cr JSRinit:LDA#0:STA tkn%:STA
chr%:JMP exit
  290 .insert TAY:LDA#138:LDX#0:JMPosbyt
e:.table OPT FNTokens
  300 ]:NEXTpass%:ENDPROC
  310 DEFFNBase:A%=&8000:REPEAT:A%=A%+1:
UNTIL!A%=&80444E41:=A%
  320 DEFFNTokens:RESTORE:READd$:t%=0:FO
Ri%=1TO136STEP2:?P%=EVAL("&"+MID$(d$,i%,
2)):t%=t%+(?P%*i%)
  330 P%=P%+1:NEXT:READC%:IFt%<>C% PRINT
"Data Error":END ELSE=pass%
  340 REM Tokens Data
  350 DATA ADAEE1D99AD5939290E4B9C885CDF
18ABDBEA7C0C1B0C2C4C3F8A3E2A0D496D6C6CCF
BDF8BE3E59DE8B2D7C9EBEDCBF0EAF9888CFDEFF
7F2F5E0ECFCDCF6E6C7A691F3D8,&ECBF7
```

```
 10 =    0 0
 20 =    0 0
 30 =    0 0
 40 = 8FBE E
 50 =  71C 9
 60 = 5E50 D
 70 = D706 1
 80 = 718F A
 90 = 6A9D 5
100 = 2529 A
110 = 5F09 B
120 = FD2E 4
130 = 98E9 1
140 = 3596 E
150 = 1F42 2
160 = 5D16 4
170 = 3222 1
180 = 8DB1 8
190 = B2DF 3
200 = CE42 4
210 = F19E D
220 = FB8D 1
230 = 859E 2
240 = 7138 6
250 = E4E0 3
260 = 47E3 F
270 = DDE2 9
280 = 40DF 8
290 = 70E0 2
300 = 8D33 B
310 = B2ED 9
320 = 7C4B 2
330 = 7064 2
340 =   -0 2
350 = A04B 2
```

PARENTS – look no further!
"... games that educate not annihilate"
Family Centre SHE May 1991

BBC
£29.99
Archimedes
£33.50
Search & Rescue
9 years +
BBC
£29.99
Archimedes
£33.50
IBM-PC
£33.50
Flight Path
9 years +
BBC
£29.99
Archimedes
£33.50
9 years +
Castle of Dreams
Archimedes
£19.99
IBM-PC
£19.99
9 years +
BBC
£13.99
Archimedes
£16.99
IBM-PC
£16.99
Ollie Octopus' Sketchpad
4 years +
Amazing Ollie
BBC
£13.99
Archimedes
£16.99
IBM-PC
£16.99
4 years +
Adventure Playground
BBC
£19.50
Archimedes
£19.99
IBM-PC
£19.99
4 years +
NEW RELEASE!

From all good computer stores

storm
Software

Children's educational software

LEARNING IS FUN WITH STORM
★ Superb colour packages
★ Excellent graphics
★ On-screen instructions, help and mouse support
★ Sound, innovative educational content and support material
★ Role-playing titles for 9 year olds +
★ Lasting, value-for-money programs

All enquiries and orders will receive a friendly and prompt service. For your free illustrated brochure or to place an order, write or call NOW:-

STORM SOFTWARE (Freepost)
Poyntington, Sherborne, Dorset DT9 4BR
0963 22469
Dealers: Contact us or • AVP • Bonsai Lightning
• Centresoft • Greyhound • Leisuresoft • Rickitt
(Storm Software is the trading name of Kempblue Ltd)

Your RISCOS Compliant Acorn Dealer!

A5000

Available NOW!
The NEW Acorn A5000 including RISCOS 3!

Acorn A5000 1MFD £999
1Mb RAM, 1.6Mb floppy drive & RISCOS 3 (Available Early 1992)

Acorn A5000 2MHD £1499
2Mb RAM (upgradeable to 4Mb), 40Mb IDE hard disc, 1.6Mb floppy drive, RISCOS 3 and Acorn Multi-Sync monitor. Super Value!

Acorn A5000 2MHD £1529
LEARNING CURVE SYSTEM
As above but also includes Acorn Desktop Publisher, 1st Word Plus, Genesis Plus, PC Emulator, Pacmania, introductory video and guidance on the National Curriculum

Acorn A5000 2MHD £1759
LEARNING CURVE PRINTER SYS
As above but also includes an Acorn Ink Jet 300dpi Printer.

A3000

BBC A3000 £599

BBC A3000 Learning Curve **£639**
This package includes Mon Std, 1st Word Plus, PC Emulator, Genesis+, Pacmania, introductory video and guidance on the National Curriculum
With Acorn Colour Monitor **£849**

BBC A3000 Lng Crv Ptr Sys **£1089**
As above but inc Acorn Colour Monitor & 300dpi Ink Jet Printer

BBC A3000 Special Access **£679**
This machine includes the serial and user/analogue upgrades for immediate connection of special need peripherals ie Conc Keybd etc
With Acorn Colour Monitor **£899**

All A3000 computers purchased from us will be upgraded to 2Mb RAM free of charge

A400/A500

Archimedes A410/1 £899
With 2Mb RAM & 20Mb Hard Disc

Archimedes A420/1 £1099
With 4Mb RAM, 40Mb Hard Disc

Archimedes A420/1 £1109
LEARNING CURVE
As A3000 Learning Curve but also incl Acorn DTP, 4Mb RAM 40Mb HD

Archimedes A540 £2495
With 8Mb RAM, 100Mb HD, ARM3

Please call us if you are offered a better price elsewhere, we will do our best to match it.

Winter Opening Hours
MON-SAT, 10.00-20.00hrs

RAM Upgrades

A3000	
Up to 2Mb RAM	£55
Up to 4Mb RAM	£156
A5000	
Up to 2Mb RAM	£129
A400	
1Mb RAM	£39
2Mb RAM	£75
3Mb RAM	£105
Up to 8Mb RAM from 4Mb	£649
A540	
4Mb RAM	£399

(This upgrade is a module. Further modules can be added to provide 12 & 16Mb RAM Totals)

Standard Monitors

Acorn Colour	£200
Standard Colour Monitor	£179
Microvitec CUB 3000	£199
Philips CM8833 II	£209
Philips BM7502 Mono	£75

MultiScan Monitors

EIZO 9060SZ	£419
EIZO 9070SZ	£629
Taxan MultiVision 775	£389
Taxan 795A (Free VIDC Enhancer)	£469
Taxan Viking II	£749

Hard Discs

IDE	
IDE Hard disc controllers	£Call
Orion, Serial Port, Beebug	
20 Mb Internal Hard Disc	£79
40 Mb Internal Hard Disc	£139
90 Mb Internal Hard Disc	£219
120 Mb Internal Hard Disc	£399
160 Mb Internal Hard Disc	£499
200 Mb Internal Hard Disc	£599
450 Mb Internal Hard Disc	£999
SCSI	
SCSI Interfaces	£Call
Acorn, Morley, Serial Port	
20 Mb Internal Hard Disc	£99
40 Mb Internal Hard Disc	£159
90 Mb Internal Hard Disc	£239
120 Mb Internal Hard Disc	£429
160 Mb Internal Hard Disc	£549
200 Mb Internal Hard Disc	£649
450 Mb Internal Hard Disc	£1249

Please call for external units

Printers

Citizen 120D+	£115
Citizen 124D	£165
Citizen Swift 9	£162
Citizen Swift 24	£225
Citizen Swift 24e	£235
Citizen Swift Colour Kit	£35
Citizen Swift 32K Buffer Chip	£10
Canon BJ-10e Bubble Jet	£219
Canon BJ-300 Bubble Jet	£399
Canon BJ-330 Bubble Jet	£459
Epson Printers (Esc P/2) etc	£Call
HP DeskJet 500	£329
HP LaserJet IIIP	£739

CC Laser Direct

Laser Direct (Qume)	£859
Laser Direct HiRes4 (LBP-4)	£999
Laser Direct HiRes8 (LBP-8)	£1319

Hardware Upgrades

5.25" Ext. floppy disc I/F A400	£30
5.25" Ext. floppy disc I/F A3000	£30
5.25" Ext. floppy disc cable	£15
Aleph 1 ARM 3 Upgrade	£285
Dongle Dangle	£6
Dust cover (Keybd + Monitor)	£12
Econet Module	£46
Floating Point Exp Card	£449
Graphics Enhancer	£169
Hawk V9 Video Digitiser	£199
I/O Expansion Card	£79
Keyboard Extender	£8
Midi Upgrade to I/O Exp. Card	£27
Midi Expansion Card	£65
A3000 Monitor Stand	£24
Mouse Extender	£8
Mouse (New style)	£40
Micro Mouse (Clares)	£29
Scanlight Scanners	£Call
Junior, 256, Wide, Professional	
VIDC Enhancer	£29
Serial Upgrade A3000	£19
User & Midi Podule A3000	£46

Books

Archi Assembly Language	£14.95
Archi First Steps	£9.95
Archi Operating System	£14.95
C: A Dabhand Guide	£14.95

The above books have accompanying discs add £7

A3000 Technical Guide	£29.95
A540/A5000 Tech Guide (ea)	£65.00
Acorn DTP Adv User Guide	£14.95
Basic V: A Dabhand Guide	£9.95
BBC Basic Guide (Acorn)	£19.95
Budget DTP	£12.95
DTP Seeds (4Mation)	£8.45
Master 128 Ref. 1&2 (ea.)	£14.95
RISCOS PRM's	£79.00
RISCOS Style Guide	£9.95
1st Word+ Manual (Acorn)	£10.00
Acorn DTP Manual (Acorn)	£10.00
Assembler Man. V2(Acorn)	£25.00
ANSI C v4 Manual (Acorn)	£25.00

Terms

UK residents add 17.5% VAT to all prices except books. Carriage is free in mainland UK, else where at cost. Prices and manufacturers specifications subject to change without notifcation. Goods offered subject to being unsold and/or available. Goods not offered on trial basis. Restocking fee on non-defective returns.

Where to find us

WE ARE HERE!
M63 Junction 12 Stockport West
A5145
M63
To M66/M67
M63
A560
To A6
To M56/M62
Glass Pyramid
Ford St
Brinksway/Chestergate
ONE WAY
King St W
Wood St
ONE WAY
A560

Software

APPLICATIONS	
Armadeus (Clares)	£59.95
ANSI C v3 (Acorn)	£118.95
Arc DFS (Dabs)	£21.95
ArcComm 2 (Logotron)	£49.95
ArcLight (Ace)	£37.95
ArcTerm 7 (Serial Port)	£58.95
ARCtist (4D)	£17.95
Artisan 2 (Clares)	£42.95
Atelier (Minerva)	£69.95
Clip Art Collection (Gra Fact)	£18.95
Compression (CC)	£45.95
Desktop C v4 (Acorn)	£188.95
Easiword (Minerva)	£28.95
Easy Writer (Icon Tech)	£118.95
Equasor (CC)	£38.95
Euclid 2 (Ace)	£45.95
First Word Plus v2 (Acorn)	£64.95
Flexifile Database (Minerva)	£97.95
Font FX (DataStore)	£8.95
Genesis 2 (Oak Solutions)	£98.95
Graphbox Pro (Minerva)	£Call
Hearsay (Beebug)	£51.95
Impression v2.13 (CC)	£124.95
Impression Junior (CC)	£68.95
Impression Bus Supp (CC)	£41.95
Investigator v2 (Serial Port)	£21.95
ISO Pascal Rel.2 (Acorn)	£74.95
Microstudio (EMR)	£79.95
Mogul (Ace)	£14.95
Multistore v2 (Minerva)	£191.95
PC Emulator V 1.6 (Acorn)	£93.95
PipeDream 4 (Colton)	£178.95
Poster (4Mation)	£75.95
Presenter 2 Hotlink (Ling)	£34.95
PrimeArt (Minerva)	£79.95
Printer JX, PJ, CA (ACE)	£12.95
Pro Artisan (Clares)	£69.95
Render Bender v2 (Clares)	£95.95
Revelation (Logotron)	£65.95
Rhapsody v2 (Clares)	£45.95
Schema (Clares)	£89.95
ShapeFX (Data Store)	£8.65
ShowPage (CC)	£116.95
SmArt	£53.95
Snippet (4Mation)	£21.95
Splice (Ace)	£21.95
Squirrel Database (Dig Ser)	£110.95
Studio 24+ (EMR)	£149.95
Superior Speech!	£14.95
Tracer (Mid Gra)	£45.95
Tracker (Serial Port)	£36.95
Tween (Ace)	£21.95
Worra CAD (Oak)	£74.95
GAMES	
Air Supremacy	£
Apocolypse (4D)	£20.95
Arcade Soccer (4D)	£14.95
Ballarena (Eterna)	£14.95
Bambuzle (Arxe)	£15.95
Blastron (Eterna)	£14.95
Blitz (Arxe)	£20.95
Boogie Buggy (4D)	£16.95
Boxing Manager (Krisalis)	£19.95
Bouncer (RTFM)	£15.95
Break 147 & Superpool (4D)	£17.95
Bubble Fair (Eterna)	£14.95
Bug Hunt, MoonDash (Min)	£14.95
Bug Hunt in Space (Minerva)	£14.95
Chess 3D (Micro Power)	£13.95
Chocks Away 2 (4D)	£16.95
Chocks Away Extra Miss(4D)	£13.95
Chocks 2 Compendium (4D)	£26.95
Chuck Rock (Krisalis)	£20.95
Crisis (CIS)	£14.95
Drop Ship (4D)	£13.95
Elite (Hybrid)	£32.95
Enter the Realm (4D)	£20.95
Enthar Seven	£21.00
E-Type, X100Mls, Des, each (4D)	£13.95
Fine Racer (Eterna)	£13.95
Holed Out, XCse1/2, Des each	£13.95
Hostages (Superior Software)	£13.95
Inertia (4D)	£13.95
Interdictor 2 (Clares)	£25.95
Iron Lord (Cygnus)	£13.95
J. Khan Squash (Krisalis)	£20.95
Lemmings (Krisalis)	£20.95
Loopz (Audiogenic)	£20.95
Mad Prof Mariarty (Krisalis)	£15.95
Mag Scrolls Adventures	£22.95
Manchester Utd Europe (Krisalis)	£20.95
Master Break (Superior)	£14.95
MicroDrive 3D Golf, USA Cse ea.	£15.95
MIG 29 Super Fulcrum (Domark)	£35.95
Nevryon (4D)	£14.95
No Excuses (Arcana)	£18.95
Pandora's Box	£20.95
PipeMania (Ent. Int.)	£18.95
Powerband (4D)	£19.95
Rekall (RTFM)	£13.95
Rotor (Arcana)	£17.95
The Real McCoy 1/2 each (4D)	£22.95
Saloon Cars (4D)	£19.95
Sporting Triangles (CDS)	£18.95
Superior Golf, Ext Cses each	£14.95
Tactic (Eterna)	£14.95
Top Banana (HEX)	£21.95
Tower of Babel (Cygnus)	£19.95
Twin World (Cygnus)	£14.95
Wonderland (Virgin)	£24.95
Zelanites (Micro Power)	£22.95

PLEASE CALL IF THE TITLE YOU REQUIRE IS NOT LISTED

Desktop Projects Ltd

Tel: 061-474 0778

Authorised Acorn Dealer
Unit 2A, Heapriding Business Park, Ford St, Stockport, Cheshire. SK3 0BT

Access
VISA

JAN 92

Has upgrading your BBC Micro given you hardware you no longer need? Or have changing interests left you with unwanted software?

MICRO USER CLASSIFIEDS

- BBC B, Cumana dual disk drive, BBC teletext adaptor, colour light pen, Seikosha GP-100A printer, £350 Tel: 0942 46368.
- Panasonic Printer KXP1081 £85 for Arc 310 Watford 2 MB memory upgrade £150 Backplane + Fan £40 Tel: 0902 338214.
- BBC B PD Science programs. CA McGaughey, 13st Mary's ST Canterbury CT12QL.
- For sale Pipedream 3. Six Disks, Manual for quick sale £60 ono Bell, 1 Sutton Way, South Shields, NE 34 7QG.
- BBC B, Solidisk 32k, 40/80 DS 5.25 drive £150, microvitec colmon £140, modem, joystick, music 500, stand £100. Tel: 081 428 1177 (Day only).
- Master 128k, joysticks, software, games, manuals £250. Tel: Martin 0227 70516.
- Master 128k 40/80 T swichable DS Drive interword, intersheet etc. Tel: Taylor Romsey 68643 Home or Southampton 895318 Office.
- A3000 H/disks: Brand new cheap H/disks available 3.5" cased + PSU + interface SCSI (8 or 16 Bit) IDE (16 bit) all fast (E.G. 9-12ms) Excellent quality Tel: Daniel 0865 510384 (not after 10pm please)
- BBC B and master software and hardware from £1.50 please write enclosing S.A.E. for comprehensive list to J R Ribbans, 30 Overcote Lane, Needingworth, Huntingdon, Cambs, PE17 3TU.
- 5.25" Cumana Disc drive, discs. Electron with turbo drive. Plus 1, Plus4, sound expansion. Sideways RAM, joystick, view, cassette recorder. Electron Users, User guide 8 manuals. £200. Tel: 0943 601364.
- For Sale: Chocks Away, Neuryon, blowpipe, Real McCoy, Hostages. Tel: 0259 61410.
- Interword £25, Interbase £25, Intersheet £25 all unregistered; Pineapple PCB + autoroute £70; Care Quad Cartridge(2), Care dual ZIF £7 each. Master User guides (advanced) £10 pair. Spare copy of IW and IS manuals £5 each. Tel: Derby (0332) 701969.
- For sale at under half price: Archimedes Podules; Acorn I/O, A448 sound sampler. Software; Acorn Fortran 77, ANSI-C, Pascal. BBC; Cumana 40 track dual drive, Acorn 6502 second processor, Pace Nightingale modem, Hybird Tech Music 500, Linear Graphics A4 Plotmate, Symphony 100 keyboard. I also wish to publicly declare that this is a purely private sale of goods i am no longer using. Tel: Alpiar Bournemouth 0202 575234.
- Archimedes 310 colour with too many extras to list please ring for details Tel:0872 512281 Evenings.
- Master 512, Microvitec cub monitor, 3.5+5.25 drives, mouse, sem, loads eeproms, disks, software efirmware, dabs press 512 and technical guide books, £600 o.n.o. will split. Tel:Bedford 0234 344895.
- BBC B issue 7, acorn dfs, inter-word, amx super art + mouse, opus 40/80 5.25" d?drive.Joystics, cassette player £365 + loadsa games. Also atari + joystics + games £69. Tel:0252 313768.
- Archmides: acorn dp £60, 1st word + £30, genesis £20, games, microsoft c £50 Tel:0382 456364
- Master compact, complete including colour monitor, 75 games, manuals, micro user disks, covers, excellant condition. Bargin £325 Tel:454586 (Sheffield).
- Master 128 + 5.25 & 3.5 drives in plinth modem data corder many roms wordwise + spell-check star base etc. 250 games lots more included full details ring Tel:081 641 5006 £475 excellant conditions.
- Music 500 synthesiser & keyboard £50. Tel:0727 823 280.
- Electron £50 plusi £60 jaffa 6502 2nd proc £60 cassette. £10 manual, tapes, leads included or £150 the lot. Tel:0565 651578.
- Archimedies: WorraCAD multitasking! Draw compatible draughting system £35.00; Minerva system detta plus £15.00; Acorn twin £6.50. All new, includind p&p.
- Master 128 twin 80 teacs joystick mouse interword amx pagemauer microvitec cub £500 epson fx80 £50. Tel:0344 882841.
- A3000 learning curve 10mth old, pres monitor stand, pres system housing, second 3.5inch drive, expanded to 2Meg, Acorn colour monitor, software, games, ETC. Tel:(061) 429 6780 £1380.
- BBC B, 40/80 track disk, ATPL rom bboard with ram, books, disks, light pen, ETC, £185 Tel:0264 364673 (home) Tel:0256 477778 (work).
- A310 colour + acess. £550, impression2 £120, system delta + £35, epson LQ850 £260.Tel:071 637 0,41 EXT224 (Ricky).
- Electron magzines + tapes, input computing guide, voxbox synthesizer, Plus 1 games, joysticks, offers. Tel:0842 762757.
- Bargin games-all originals-MAD professor mariarti £10, Iron lord £10, Twin world £10, Terramex £5, pacmania £5, Interdictor £10, Interdictor2 £15, startrader £5, Manchester United £10, Powerband £15, Worldscape £10. Tel:(0622) 831810.
- BBC roms for sale mos + screen print Edword super art ADFS and many others. Tel:(0656)739823 or (06560733618 after 4pm.
- For sale: B.B.C. teletext + ATS rom Inc Manual £50. Watford Wapping Editor + mouse Inc Manual utilities disk £50. Watford ROM/RAM card Inc utilities disc £40. Tel:081 368 1773 After 6pm.
- A3000, colour monitor, serial, user/midi, 1MB upgrades and software. £700 o.n.o. Panasonic KXP1180 9 pin printer £100 o.n.o. Tel:0395 512413.
- BARGAIN!!, Master 128k, dual ds/dd 40/80t plinth DMR including p.s.u. Twin joysticks , mouse mat , dust cover, manuals, leads,Barbarian II, Educational software, star-data base, utilities MU's mags + disks + binder, disk box and more. Excellant condition: £400 o.n.o.Tel:081 443 2060.A3000 learning curve, acorn colour monitor, star lc24-200 printer + more (cost £1300) as new £950 o.n.o. Tel:Jon 0729 823688.
- Printer-Mannesmann Tally MT87 & 80-coloum, 9-pin, business printer. 200cps draft, 50cps NLQ, 7k buffer, very reliable, very good condition, with ribbions, 2 manuals, and 2 font cartridges. Worth £520 new, a bargin at £150ono. Tel:0272 324608.
- BBC issue7, 40/80t DSDD drives, joystick disks, £200 + software user guides, tape machine £300ono Tel:0278 783205.
- Archimedes 440, E210 flexscan 8060s multisync 14in colour monitor, pc emulator, ansi c, arisan. All boxed £900 Tel:0202 692201 evenings.
- Sampler + highnote £80, I/O-podule £40, 4D games £12 Stuart Tel:081 657 4114 evenings.
- Master 128k, twin master 40/80 plinth drive, microvitec colour monitor, interword rom.£650ono.. Tel:0483 766998 after 6pm.
- BBC B fitted DFS and 128k sideways/shadow ram. Software, mags etc. Faulty keyboard hence £95 Tel:061 787 7985 after 7pm.
- Master 512k, taxan monitor, twin drives teletext and other accessories, software, books mags, all V.G.C. £595. Tel:061 787 7985 after 7pm.
- Philips V7001 green screen monitor with BBC cable. £40 Tel:081 6449564.
- A 3000, 2 Meg, serial port, joystick, stand, books, hearsay, interdictor, boxed. £650 phone; modem. Tel:051 733 2173.
- Master 125 double diskdrive, colour monitor 6502 procasson teletext adapter tape input, mass of manuals, books, programmes and accessories £350 buyer collects Tel:0843 587548 Ramsgate.
- Philips CM 8833 14" colour monitor with hi-res mono-chrome green switch for wp. Boxed with manual as new £100. Tel:0256 882380.
- Master compact, disc drive, monitor, view, viewsheet, viewstore, ADT roms. Bargin £175. BBC B with view and software £125. Tel:0203 366256.
- A 3000 learning curve coplete with colour monitor 1meg ram only one hours use £750.00 Chamdler Tel:0453 885139.NO VAT.
- A 3000 4mb, colour monitor (cm8833), with plinth, manuals, and software, V.G.C. sale due to upgrade £900 o.v.n.o. Tel:0322 529976 (kent).
- BBC B, DFS, ADFS, dsdd80t drive, green monitor, £215 o.n.o. Colour monitor £35 o.n.o. Tel:0223 352145.
- Sort out ANY number of ANY type of basic arrays quickly and easily. BBC (£10). Archimedes (£15). Tel:0455 220586
- Hybird music 5000 synthesister . 4000 keyboard, software and footwitch. £200 o.n.o. Tel:0977 550079.
- Master 128k pace 40 80. ADFS diskdrive. Acorn med.res. Colour monitor. Printer. View rom. View store rom. View sheet rom. View spell rom. Word wise rom. BBC help rom. BBC + advanced opsys rom. Competition BBC pro joystick. Games including Elite, U.I.M. BBC B + 32k +pace disk drive offers: £650. Tel:0260 278724.
- Master 12B, 6502 co-proc, colour monitor, 2x80t bridged floppies, 30myte winchester some software + manuals £500. 280 2nd proc unopened £50 master compact, colour monitor, overview, 25 games, C, + manuals £350. Cambridge Tel:0223 249594.
- BBC B ds 40t disc drive, microvitec colour monitor, epson LX80 printer, AMX mouse super art, joystick, interword rom, games, utilities/mini office. £490o.n.o. Tel:081 669 6419.
- BBC master-£220, pual drive 0/2-40/80t 400k 1/3-80t 400k-£80, cm8833 colour monitor-£120 nec 24pin P2200-£100 plotmate A3m 10/pen HP-£250, 12" green monitor-£40, olivetti sparkter printer, £25 tracker ball RB2-£20.We 32k shadow ram printer/buffer-£30, we solderless sideways ram board-£25, interword-£20, spellmaster-£25, intersheet-£20, interchart-£20-will accept offers-Tel:0780-720961 7pm-10pm.
- Archimedes software:- Pc emulator, ADTP, 1stword+, GAMES! OFFERS! Tel:0535 661908.
- BBC B& BBC master+colour monitor+two ds/dd twin disc drives+£1300 of software, over £500 books+modem+digitiser+lots more software, hardware. Unbelievably only £700 o.n.o. Phone steve on Tel:0932 787179.
- Acorn DTP unused complete with manual £70 Tel:0943 878133 evenings.
- Monitor: Phillips CM8833 MKII 14" colour stereo. 5 months manufacturers guarantee. For PC and BBC computers. £150. Tel:0606 891811.
- Master 128, technomatic disk drive, panasonic kpx1081 printer, watford quad cartridge, view printer driver rom, dumpout III rom, mini office II rom manuals, games. £400. Crawley 0293 512768.
- Wanted Archimedes complete, any model considered, will collect. Tel:0332 830 140.
- Electron plus many games. £25 wanted: Master 128 Ref. Manuals, view mannual. Tel:071 2749258.
- BBC games-Imgen-£4, Reptan infinity-£4, holed out-£5, Archimedes drop ship-£12. Tel:0252 312168.
- A3000 2mb PC emulator and genes £575 Technoscan2 scanner £150, both for £710 o.n.o. Tel:0509 506579 ask for David.
- Archimedes: Minerva's Multistore VII complete with manual in original packaging. £190 o.n.o. Tel:0780 66449.
- Intersheet (Roms unused) £25, interword plus cartridge £24, Elite (superior) £8, master reference manuals 1&2 £16, watford BBC diaenostic disk £6. Tel:0293 884105.
- Watford 32k ramcard plus interword rom and all manuals £50. Tel:0275 858528.
- Hybird music 5000 synthesiser, 4000 keyboard, and 2000 midi interface-£280 o.n.o. Tel:0438 356453.
- Electron plus 1 plus 3 view viewsheet and T2P3 dozens of games £200. Tel:0273 557883 Brighton.
- Wanted-solidisk board+sideaid, also interested in eprom burner. Call. Tel:0767 23581 after 5pm.
- BBC master, second processor DS40/80 disc drive, software & roms. Epson FX80 Tel:0705 732251 after 6pm. £200 only for quick sale.
- BBC master Compalt computer, 3.5 inch disk drive, view, spellmaster, extras, as new, £250 Tel:044 128 3570.
- Electron 32k £30 plus1 interface £10 W.H.Smiths datacorder £10 advanced plus5 £10 advanced plus4+T2P4 rom £20 plus3 unit+ext. Drive adaptor (int.drive as drive 1) £20 advanced disk toolkit rom £10 advanced battery-backed RAM cartridge (32k) with software £10 voltmace 3B analogue joystick £5 large selection of software (tape) £20 the lot. Back issues of Electron user (1987-90) £10 also:-Watford electronics Lemodem for BBC Micro (v21/v23) with software £10 Miracom WS3000 (v21/v22/v23) £50 i need the extra space and the money! Tel:Watford 0923 30097 anytime.
- BBC B+64k, externally switchable to BBC B 1.2os, 1770 dfs, N.G.C., boxed £145; S.A.E for games, Mike Poskitt, 38 Fambridge Drive, Wickford, Essex, SS12 9HR Tel:0268 767107.
- BBC issue 7, stop press, mini office 2, quest paint, watford dfs, mouse rom board, replay, joystick, many games, tape and disc, will split. £220. Tel:0604 705006.
- For sale-: For the BBC computer W.E. solderless rom board £25, W.E. 32k shadow ram board £25, AMX stop press package £25, AMX design package £45 and kempston pro joystick £10. Contact Tim on. Tel:081 569 3244 evenings.
- BBC B issue 7, Acorn DFS, ATPL ron board, extra 16k ram fitted £175. Acorn teletext adaptor £65, antor AMT2 £125, autodial board (inc s/w) for nightingale £30, commstar2 £15, sleuth £15, CC's caretaker £15, Toolbox, Beebcall, Scrabble, Elite, £10 each. Speech, Wordease, viewtype, deskdiary, Record-Keeper, White Knight Chess, Linkword German, Spanish, Italian, Missle-Base, Gateway Karos, Firebug £5 each. Magazines 82-86 FREE with computer. Tel:0222 598062.
- Wanted urgentley Archimedes computer any model considered good price paid will collect. Tel:0332 281540.
- Acorn teletext adaptor with ATS rom. V.G.C. £55 Tel:0472 827561.
- Torch Graduate. Second processor for BBC Micro. IBM-PC compatible, Ms-Dos, dual 360k disc drive £195. Tel:051 638 4268.
- BBC B with graphics rom, much software and books etc. Cassette recorder and plinth also included. £160 o.n.o. Tel:0233 621223.
- BBC B issue 7, Acorn DFS. Watford 32k ram; DS40/80t drive, sideways rom. Interword, interchart, intersheet, spellmaster. Books, 'Elite', 'Aviator'. £250. Maidenhead. Tel:0628 26076.
- BBC B Acorn DFS dual 40-80 drives microvitech monitor HCR rom box joystick mouse cassette many free disks £450 o.n.o. Rossondale Tel:0706 226988 Ian.
- Pro Artisan £55 , Acornsoft 'C' version 3 £70. Solidcad, film maker, solidsrender, £60 each (non multi tasking versions), I/O populе £50. All for Archimedes. Nearest offers accepted. Tel:0639 632212.
- Archimedes Acorn DTP £80, Ironlord, Twinworld, Powerband, UIM, Interdictor1 £10 each, Arcade Soccer, E-Type, Olympics £5 each. Pres A3000 monitor stand £12. Call Tel:669 4127 ask for Steve (after 7pm).
- Loads of BBC B master bits and pieces. S/W. Roms inc. Interword, Interbase and various manuals inc. Master Ref manuals also DS/DD 40/80 400k disk drive (we) Tel:0625 877376 evenings.
- Morley master romboard £25. Acorn 64k sideways ram for BBC B+ £15. Tel:041 942 3981 evenings.
- FOR SALE All at under half price: Archimedes Podules:- Acorn I/O, Armadillo A448 sound sampler with FFT software, Brainsoft Multiboard, Watford Video Digitiser. Acornsoft ForTran 77, Ansi 'C'. BBC/Master:- Cumana dual 40 track drive, Acorn 6502 second processor, Pace Nightingale modem. Hybrid Music 500 synth, Lineargraphics A4 Plotmate. Tel: Ronald Alpiar Bournemouth (0202) 575234.
- Digitising tablet TDS LC12 Professional quality £110 Tel: 0903 65727 evenings.
- Archimedes 410 4Mb RAM plus 192K Podule, HiRes multi-synch monitor £900 Tel:0532 736943.
- 2Mb A3000 computer: Learning Curve, CUB3000 Monitor, LQ-400 Printer, Dust Covers, etc. Excellent condition; Boxed 1.5 years old, £1000, negotiable. Tel:(0329) 664258.
- BBC B, 8271 DFS, 80T drive, speech upgrade, extras; £150. Ferguson TX TV/MON; £40. Watford Shadow RAM Board; £20. Volumes 1-6 Beebug, 1-4 Micro User, 4 vols Acorn User from Jan 1984; Offers? Tel: Tadcaster(0937) 835744.
- Tractor feed LX80 five new ribbons £20 Arc games Nevryon £10 Holedout £8 Holedout Extra Vol1 £8 Mig29 £15 Apocalypse £7 Tel:0664 61548
- BBC B, 40/80T disc drive, double joysticks , Mini Office II, 110 games, other 20+ software, books, tape recorder, £285 Quick sale, Tel:0730 88286 Hampshire.
- Master Compact, disc drive, joystick, 24 games including some compilations, also several business and educational programmes £250 Tel:061 427 1900.
- Master emulation ROM. £10 Wordwise Word processor ROM. £10 Epson FX80 printer £85 ono Tel:076 723 208
- Wonderland for the A3000 £18 as new Tel:0923 828750
- Master 512k, 5.25in drive, Hi-Res B/W monitor, Epson RX80 printer, 6502 2nd processor much software including Acornsoft C, games, Imagima etc. £299 Tel: William 0279 424139.
- A3000 2Mb, colour monitor, Panasonic printer, Pres system housing, monitor stand, discs, covers, games, excl. condition. £875 Tel: 0444 811716
- Master 128, dual double sided 40/80 switchable 5.25in disk drives, Microvitec 1451 medium resolution RGB monitor, Acorn Teletext adaptor, all boxed with manuals, ROMs and software £450 ono Tel:0582 761393
- Wanted ROM based version of Mini Office II Tel: 0786 824548.
- BBC Master 128. Two 40/80 Switchable drives, cables, mouse, ROM carriers, books, View Professional, Printbox, PD and tape programs, approx 100 discs, disc boxes. £330 Tel:Cardiff(0222)843493

Turn to Page 133

Hilights and lolights

Pam Turnbull discovers an easy entry to the art of hypermedia

NOT to be confused with hairdressing, Hilighter takes its name from the next best thing to StickIt notepads in the stationery world – the hilighter pen. Available in a host of fluorescent colours they are a brilliant tool for aiding revision, emphasising points or jogging the memory. The computer application is just as simple and equally useful.

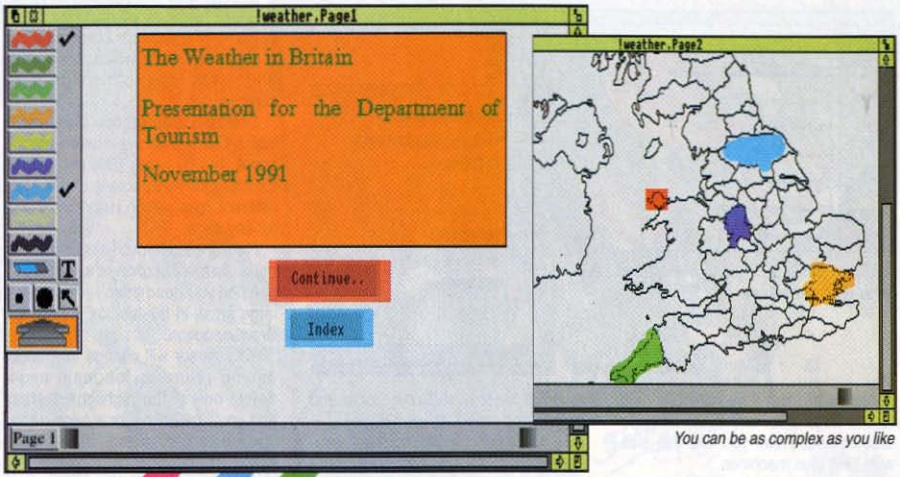
Hilighter comes under that ubiquitous heading of a Hypercard-like application. Hypercard is the Apple Macintosh version of hypermedia – the ability to mix music, animation, graphics and text in an all-singing all-dancing database – and has been available on the Archimedes as Genesis, Magpie and Bookbinder.

Most hypermedia applications are both powerful and complicated, with a host of features and the ability to be programmed. Hilighter won't let you program it and it doesn't supply the functions and options that the others do – yet.

However, it is low priced, a joy to use and you can produce intricate and highly user friendly folders quickly and simply. If you use Genesis for creating simple databases without music or moving graphics you are not using it to the full, or if you feel intimidated by the range of options, then Hilighter may be for you. Calling itself an information management system, Hilighter creates a database which is very intuitive to use.

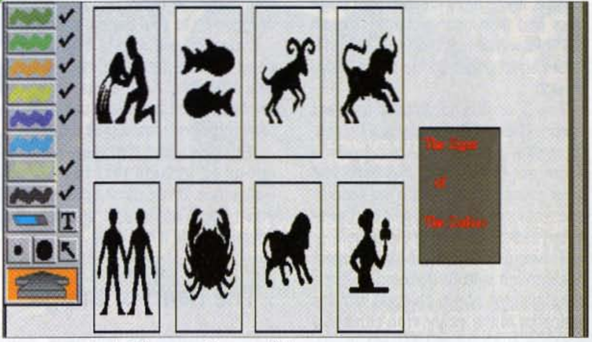
To clarify terms here, the database we're talking about isn't an address or a mailing list, but more a reference book. If you are interested in trains for instance, click on the name or picture of the particular train and you'll be taken to the relevant page.

Product: Hilighter
Price: £45.00
Supplier: Sherston Software, Swan Barton, Sherston, Malmesbury, Wiltshire SN16 0LH.
Tel: 0666 840433
Requirements: Risc OS (1Mb plus preferred)



A simple title page

You can be as complex as you like



A more complicated title page with seven tints

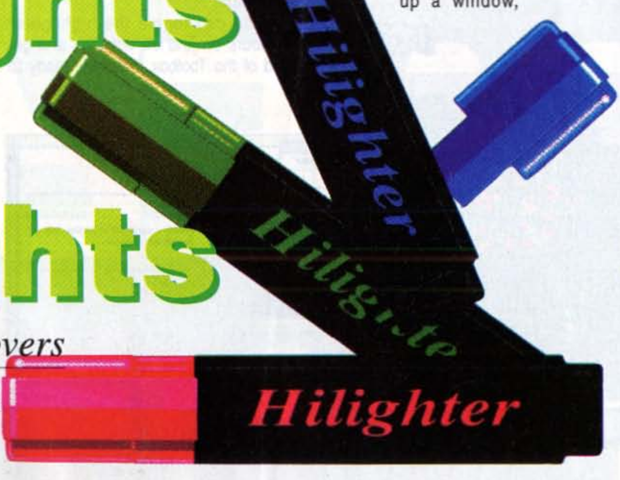
Getting started

Designed for school use, the package comprises an eight-page booklet with ideas for the classroom, plus two extra discs full of sample folders. However, it would be a great shame if it was restricted to this environment as it is so easy to use, even for the most novice computer user.

The manual is short and easy to follow, explaining all the basics, and is well laid out and illustrated. Loading the program is a little more unusual. It loads as usual on to the icon bar, but then clicking on the icon brings up a window, which explains that you have to create a folder first. Also you find that each folder you load opens another copy of the program. You're unlikely to want more than one open at a time, but if you do it'll eat into your memory.

The extremely nice feature about the whole program is that all the tricky bits are done for you. Clever programming hides the mechanics and lets you get on with what you're doing. Oh yes, and keep an eye on the icon bar icon – when a folder is open the pen top is removed.

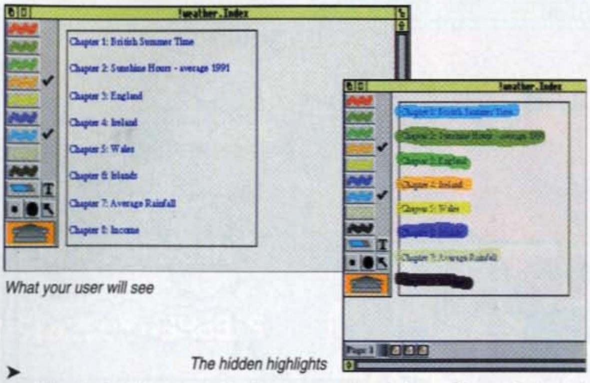
Options are kept to a minimum, which can be a shame at times, especially with the text files. But it makes you do things simply, which is not a bad lesson to learn.



Entering text

When you start a new folder you are presented with the first page. This can be resized to A4 or kept at Mode 12 – the page is the size of the screen. Think about your page size, as the A4 portrait size does need more memory and slows things down

➤



Chapter 1: British Summer Time

Chapter 2: Sunshine Hours - average 1991

Chapter 3: England

Chapter 4: Ireland

Chapter 5: Wales

Chapter 6: Islands

Chapter 7: Average Rainfall

Chapter 8: Income

What your user will see

The hidden highlights

➤ considerably. But if you are planning to use large draw and sprite files, it's recommended that you use this size with 1Mb plus machines.

Also, if you have created your page links and then change page size, all the links will be lost. You can have different sized pages in the same folder though.

The T on the toolbox is the text option. Click on this and you'll be able to create a text box. A window will zoom out of this and it is here you input or import text. Close the window and your poetic prose will be transferred to the text box on the page.

There is a choice of fonts, sizes, background and foreground colours, but alignment has to be done with the spacebar in the editor. You can put a border around the text, but this is only a simple black line. For more elaborate borders you'll have to import a !Draw file and pop your text box inside it.

!Draw and !Paint files can be dragged on to the page and you can then resize and move these using the arrow option in the toolbox.

Pressing Control+R or choosing the Resources option in the menu will reveal a window of !Draw, Sprite and Highlighter pages at your disposal in this document. These contain standard clip-art arrows, continue, previous page and so on, which are dragged on to your pages as desired.

Deletion, sending to back, front, copy, select, clear and save options are available via the menu or key shortcuts. And there is a useful wipe-clean quick reference card supplied.

It's unfortunate that there isn't the option to include text files in the Resources. If you have a piece of text you'll need again and again, you'll have to create it in !Draw.

The heart of things

Having created the first page, contents, title or whatever, you now need to create the links.

The two circles on the Toolbox represent the nib size. The parallelogram, the erase and the eight colourful squiggles, are the highlighters at your disposal. Choose your nib size, make sure that the highlight is selected in the menu and go. The usual pointer changes to a pen and you can highlight all or some of the items on the screen. Using Shift as well creates a box which is a quicker and neater way to highlight your choice.

I created a horoscope using some clip art files. The signs were all one sprite, but by using different colours for the signs I was able to create eight different links, which is the maximum for any page.

Having made your links – you can make them all at once or add them as you find you need them – click on the large arrow in the toolbox. This is the Browser option.

Your cursor will change to a finger as you return to the main page. Select one of the highlighted areas and you'll be asked for a page name. You'll then find yourself in that page which you can design in exactly the same way as the first page.

That is all that there is to it. You can carry on *ad infinitum*, creating links to and from other pages, the same colour on one page always taking you to the same new page. A tick will tell you when a link has been made for a particular colour.

When you access the Resources window you can also link new pages to existing ones by taking the page icon to the highlighter colour. This is especially useful if you have a lot of links on one page and don't want to leave that page just yet.

If you want the same page layout throughout, use the page save option to create a template. When you've edited it to the new page style save it as a new name.

At the bottom of the screen are quick link icons. Selecting these will return you to the last page just seen – the program remembers the last 20. On the other hand if you know the page name just press Control+G and enter the page name or drag the relevant icon from the Resource files to the page.

You can toggle the highlighter colours on and off with Tab and get rid of the Toolbox. It is now ready to use. Your guinea pig can now click away to his heart's content getting deeper into the file whether it is an adventure game, presentation, teaching source or family tree.

Printing is again standard, allowing you to print one or more copies of one page or the whole folder with and without the links showing. If you choose the link option the page will be reduced in size with the links printed to the right.

Techie bits

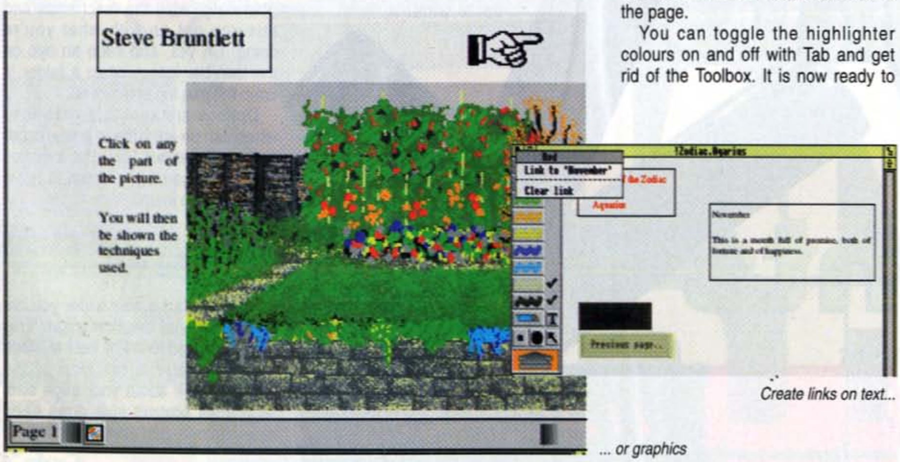
Two new fonts are supplied with the program, Montclair and Tabloid, which you'll need to move into your Font folder before you start.

You can also customise your Resource files by holding Shift and selecting Highlighter. You can then put into the Resource directory what sprites or draw files you know you're likely to want with all your documents. This amended Resource file will then load up with each new folder.

There is a list of filing system limitations in the back of the manual which is very useful. And hidden away there is how to make your document independent of the Hilighter program.

This means that you can use your creations on computers which don't have Hilighter so people can access your pages but not edit them. These can be freely distributed, but remember that Hilighter itself is NOT public domain.

Simply access the icon bar icon follow Folder on the menu and click the relevant boxes. To make it dependent just reload and the additional 50k of program will be removed. Simple.



Steve Bruntlett

Click on any the part of the picture.

You will then be shown the techniques used.

Link to 'November'

Clear link

November

This is a month full of promise, both of fortune and of happiness.

Create links on text...

... or graphics

Summing up

Simplicity and ease of use are what you'll notice most with this program. A polished piece of programming, an intuitive interface and a limited range of options which doesn't restrict.

Sherston are planning to add more file types and hopefully just a couple more options too. Though with all presentation documents of this sort you should plan your layout first, Hilighter is so easy to add to and alter that you could do this on screen as you go.

Most definitely a load up and go program. A must for business presentation, home use, hobbyists, schools and anyone who'd like to use a package which is extremely good value for money.

MICRO USER CLASSIFIEDS

Continued from Page 130

- Archimedes A310. 4Mb RAM. 40 MB Hard drive. Taxan 770 Multisync monitor. Midi podule. Tracker ball. Memcia upgrade. Software and blank diskc. £1450 Tel:071 481 1657 (eve) or 0372 386537 (day)
- Electron in original box, hardly used. £40 ono. Tel:021 354 3981.
- BBC Master 128 Twin DSDD Watford Disc drives 65c102 turbo board plus software £400 ono Tel: 0744 895198.
- Master 128, Software, dual drives, Star NL10. All boxed, £450 ono. Archimedes Minerva DTO £60. Tel: 081 536 1288 (eves).
- A3000LC Colour monitor all original manuals discs. PRES housing additional 3.5/5.25in drives software £950 Tel:081 311 5545.
- Archimedes A410. 4Mb, colour monitor , SCSI interface, software and extras. Cost new £1700, sell for £900 ono. Tel: Richard (0482) 897871.
- BBC B, good home required for much loved micro, includes AMX art, 40/80 double sided disc drive, FX80 printer, Watford sideways RAM/ROM Board, ZIF socket, original software, and ROMs manuals. Total package £200 no separates. Contact Ben Eaton on Southampton (0703) 226892.
- BBC 6502 second processor £25 Sideways ROM board £15 Teletext + Prestel Adaptors Tel:0734 861234 evenings
- WANTED VERY URGENTLY: For the BBC Micro - Communications ROM software and modem. Tel: 081 950 3406
- Master 128K, two 40/80 drives, excellent condition, £295. Leicester 0533 861199.
- Electron games send a SAE to Chris Fix 30 Farndon Road, Woodford, Halse, Daventry, Northants, NN11 6TT.
- BBC B, Philips 8833 monitor, 40/80T disk drive, printer, stand , manuals, games & eductational software, little used. £385 ono Tel: 0494 443677.
- BBC B. Watford DFS, ROM/RAM board, Wordwise, dual 40/80T Drive, colour, TV/RGB monitor, printer, books disks games etc. Only £350 may split Canterbury (0227)831196
- Archimedes A410/1, 4Mb Ram 43Mb HD, VIDC, I/O Podule 5.25in drive interface, software: PC emulator, Worracad, PC-Access, Tracer and PD, 12 months old, as new condition, boxed with manuals. Upgrading. Any trial. Please Tel: Mr Gleeson: (0782) 412515 Ext.4034 (day), (0782) 771914 (eves and W/E).
- !CL - Multitasking communication software for the Psion & Archimedes utilising PSION PROTOCOL. Backup all of your Psion data by running one program. Many other features become available on your Psion; remote file access, send print to file or printer, send or receive any Psion file, plus more. All for £30. Make cheques payable to M.W. Goodwin, 13 Prestbury Close, Blackpole, Worcester WR4 9XG.
- Archimedes 310 colour with two slot backplane, fan, 5.25in disc interface, RISC OS, Manuals, all originally packed. Games; Zarch, UIM, World Scape & Quazer., £650 Tel: 0299 270443
- Archimedes A310M, colour monitor, 40meg hard disk drive, 4 podule back plane, PC emulator (latest version 1.7), "Archway" WIMP development program, joystick, plus lots of software. £800 the lot. Tel:0634 253678
- Electron, Plus 1, Advanced Plus 3, Printer, Joysticks, View, Viewsheets, Games, Plus lots more. £180 o.n.o. Tel:0703 261808
- A410 47mb Harddisk 4mb ram. Original "boxed" condition. Loads of software. £1400 o.n.o. Tel: 0249 813209 Bob Chippenham.
- BBC B, Wordwise plus, Epson RX8D printer, page disc syst ingrtdol XK696 tape R, Smith Corona interface, Philips B/W monitor, manuals, tutorials and games. £225 . Also Atari video with games £25. Canon portable typewriter £40.00. Answercall phone system £45. Tel: 071 352 4608.
- BBC B, DS/DD 40T drive, Amstrad printer, 2 lockable disc boxes, 16K sideways Ram. Loads of games including Elite, Exile, UIM. £400 o.n.o. Tel: 0308 421786
- 1984-1988 39 Micro Users £9.00. 35 A & B computing £8.00 Tel: 081 891 3468
- Master 128, dual 5.25" 40/80 double sided Akhter disc drives in plinth, medium res 1451 Microvitec Cub colour monitor, 6502 second processor, teletext adapter, Epson FX-80 printer plus leads, manuals and ROM cartridges. Some books and software. Excellent condition, £600 Tel:071 602 1504 (evenings).
- Acorn colour monitor for Archimedes, A3000. Little used, mint condition £140 Tel:0405 764598.
- Modem! FAlcom FCM2400 very high spec. Modem. Never used, highest quality. DTE Speed of 9600 Baud. MNP5 V42Bi5 etc. £300 Tel:021 779 6953.
- Acorn medium resolution colour monitor for Archimedes V.G.C. £120 Tel:051 734 1409
- BBC Master 512K DOS compatible. Twin Disc W/Ps. Teletext adaptor. Joystick, mouse, ROM/RAM Board, cartridges, ROMS, games, applications, utilities, DOS programs, Disks, Kaga Taxan printer. Manuals. £495 Tel:0652 648571 (Scunthorpe) also BBC B with DFS available.
- BBC B issue 7 OS 1.2 + Shadow RAM, Interword, 40/80 Opus 5.25in drive + DFS, Data recorder, cassette box, dust cover, joystick + lots of software, disks, manuals and cables £250 o.n.o. also 1st Word+ version2 £50 for Archimedes Tel:(031) 447 7312
- A3000, 2Mb RAM, colour monitor, software, £700. Epson printer £75. Tel:0603 55303.
- Software developers toolbox (never used) £650. Acorn DTP + many extra fonts £75. Artisan + support disc + graphic writer £40. Telephone 081 950 5904.
- A3000, 2Mb, over £200 of software. No monitor, £650 o.n.o. Tel:0698 826871 after 8pm.
- Archimedes 410/1 4Mb RAM 50Mb Hard disk Taxan 770+ MultiSync. Much software manuals original packaging. Immaculate £1500 o.n.o. Tel:0952 613619
- Archimedes 310 RISCOS2 Taxan 770 MultiSync 4Mb RAM new 20Mb Hard Drive Multitask PC Emulator some software £850 Star NL10 printer includes space saving stand £95 Tel:Dorking 0306 7300647.
- Archimedes A310, colour monitor, RISCOS, 5.25in disk drive + interface, joystick, good condition £725 Tel:081 747 9699, evenings, ask for Darren.
- A3000, 2Mb, Acorn Colour monitor, original manuals and applications discs, some games including E-Type. All good condition. £700 o.n.o. Tel:0785 760082 evenings only.
- BBC Acorn Master 128 £295. Turbo Board £50. Spell Master £25. Mega3 ROM £45. All new boxed and guaranteed S/H double sided 40/80 disk drive with PSU £35 Reason for sale, made redundant Tel:0582 606230
- 3.5" disc drive, Electron, Plus 1, Plus 2, Plus 34, Trackball, Software. £110. Tel: 0245 443447.
- BBC Master 128K Microvitec colour monitor 5.25" DD 40/80. All view family manuals, Master Rom Hyperdriver etc. £350 o.n.o. Tel: 0793 870 682.
- Wanted View Professional for BBC B. Tel: 0703 433223.
- Zarch £10, ARC-PCB £100, Arm assembly language programming (Book) £7. Tel: 0267 236499.
- WordPerfect 4.2 (not 5.1) wanted. Tel: 0272 249780 evenings.
- Morley 100Mb SCSI disc drive and cached interface card. Brand new, never used. £500. Tel: 0689 876209.
- Archimedes 310 Riscos, Philips colour monitor (boxed), Manuals, double disc drives, seldom used £650 o.n.o. Tel: 0225 835910 after 6pm.
- BBC Master 512, Double sided 40/80 drive, Complete Wapping Editor suite, Dumpout 3 AMX Superart, Lightpen joystick reference manuals software, Desk Excellent £450 o.n.o. Tel: 0332 761222.
- Archimedes A310M Risc-Os colour monitor PC Emulator twin disc drive 1st Word+ Acorn DTP £550. Watford 5.25 40/80 switchable twin disc drive with PSU £85.00 Tel: 0676 32325.
- BBC B+ 128K boxed as new, hardly used. Acron cassette recorder and games, View, Viewsheet £180. Tel: 0530 416445.
- Archimedes 310 H-disc monitor PC Emulator Handbooks. New 1990 £625. RS232 Modem plus various £50. Tel: 0438 722028.
- BBC B Torch Z80 twin disks Philips Monitor. Sanyo recorder Juki 6100 printer. Perfect software games. Joysticks. Desk. £195. Tel: 0494 721791 evenings.
- Archimedes A440/1 4 Mbyte Ram, 50 Mbyte hard disc, Arm 3 (30 Mhz)m Vidc enhancer, Eizo 9060S Multisync monitor £1700 o.n.o. Panasonic KXP1124 printer with 64K buffer £200. Multistore V2 £199. Tel: 0780 66449 after 6pm.
- A310 Risc OS, 20Mb internal hard drive, 4Mb Ram, colour monitor, printer. Cost new £2000 sell for £1200 o.n.o. Will deliver nationwide Tel: 0283 219295.
- Archimedes games, Saloon cars, Break 147, Chocks Away and extra Missions, Holed out and extra courses, real McCoy 2, Nevryon, Terramex £90 o.n.o. Will sell separately Tel: 0283 219295.
- Archimedes Version of Elite Multi-Tasking, brand new £39.95 sell for £25 only released 11.10.91 Tel: 0283 219295.
- Master 128, Philips 8833 colour monitor, twin 40/80 5.25 drives, View, Viewstore, Viewsheet, ADT, Nidd mouse, many books £425. Tel: Steve 0253 44993.
- Wanted Micro Users December 1985 to November 1988. Will pay any reasonable price. Tel: 0784 433516 after 3 pm.
- Wanted Defect BBC B/Master hard disc. Tel: 081 540 0309.
- Philips CM8833 14" colour monitor £150. Labelmaster Plus colour version £10 and Archway 2 programming tools for Archimedes £40. Tel: 0536 724981.
- BBC B 32K, 1770 DFS, ADFS (with disable switch). Watford solderless Rom board +16K SWR (with W/R protect switches) Basic II Stop Press Dumpout 3 View A2-1 volume control and earphone socket. Note. No joystick port. £300 o.n.o. Tel: 0978 823243 after 6pm.
- Archimedes A410 and 4mb Ram, 40mb H disk UHF modulator, loads of software/Clip art, games etc. Tel: Gary 0274 722213.
- Master 512 co-processor. 1Meg expansion all mint £210. Acorn 21 Mbyte hard disc £210. essential software Utils. Master 512 technical & user guides £20. latest master OS Rom. Tel: 0326 240734.
- Master 128 twin Cumana 40/80T drives Acorn colour monitor double Plinth. Large selection of Roms including computer concept programmes. Acorn Teletext. All manuals and cables. All in excellent condition. £500. Tel: 0264 710314.
- BBC B Twin D/drive View family software Microvitec Cub colour monitor Manuals etc. £320. Tel: 0924 469222 after 4.30pm.
- Wanted 40/80 disc drive 5.25" also mouse and AMX Super Art for Master compact also educational software on 3.5 disc and floppy. Tel: 0224 642786.
- Acorn ADFS Rom disk & manual £15. ZIF sideways Rom £10. Beebcalc Rom £8. Beebfont Rom etc £10. View 2.1 Rom etc £25. Commstar Nightingale Modem £25. Buyer pays postage. Tel: 0224 642786.
- BBC B series 7 with 32K SWR 512K challenger 3 D/D PSU Roms Incl Interword. Loads of games £180 o.n.o. Tel: 0628 29871.
- Wanted Archimedes and associated hardware, software. Anything considered. Tel:Stocksfield 0661 842486
- Philips green screen monitor £50 Electron Elite tape Tel:081 874 8069
- Master 128, 40/80 drive, Kaga Taxan 810 printer, music 5000, manuals, software, £250, Tel:0454 322138 after 6pm
- Two computers!! Electron, Rombox, 32K ABR, "Trek, BBC B, books magazines, over £150 software, cassette player, leads. £250 Tel:Steve 0436 842274
- Master 512 + 5.25 drives + complete set of manuals + original games software £300 o.n.o. Tel:John after 6pm 081 679 1494
- Morley Teletext adaptor. Instructions, utilities disc, ATS, PSU, £60 Tel: 0532 585858 evenings only. Ask for Graham.
- Morley 2Mb RAM disc for BBC. £140 o.n.o. Tel: 0925 753839
- BBC Master 128 colour monitor, dual 5.25 & 3.5 drives, 6502 second proc. Tracker-Ball Rom board , interword, Interchart, Intersheet, Spellmaster, Reference manuals, Modem, ADT ADI Cartridges £400 Tel:0322 562425
- Master 512 Co-Pro Shibumi Soft DOS+ problem solver £95 Master 128 twin Cumana 40/80 drives Elite £350 Tel: Dave on Basingstoke 0256 465785 evenings.
- Archimedes P.C Emulator for EGA. (Will run Microsoft Windows) not used or registered. Will accept £80 ono. Tel: 06333 2668 anytime.
- Wanted 512k upgrade for Master128. Reasonable price. Tel: 0252 549932 after 7pm.
- Archimedes 420/1 2Mb RAM, 20 Mb HD, colour monitor, manuals and a variety of software value new is £1500 will accept £950 ono Tel:06333 2668
- Archimedes 310 colour excellent condition, 20mb HD, many books including PRM, software £500 o.n.o. Tel: 0638 750661 after 7 pm.
- Master 128, AMX mouse, smart cartridge, 40/80 drive, software, disks, manual. Good condition £400 Tel: 0922 29014.
- 64K Electron, JAFA Shadow Ramboard, Slogger Rombox Plus, pres ADFS Interface. View, Viewsheet. All manuals. £160 Tel: 0483 763470.
- " BBC B 80T disk drive, Micronet modem, Wordwise, Daisy wheel printer, some software £200. Tel: 0992 711785.
- Masterfile II, Wordaid, Wordwise +, White Knight 12, Key, Dumpout 3, Toolkit, Pendown Welcome, Spettcheck, Knitwear, Wordplay Quest Paint books Wordwide + assembly language Adv User guide, Graphics disc systems offers. Tel: Graham 0234 342187.
- BBC B with D/D. Disc drive, View W/P, Viewsheet, Viewstore, Viewspell, Cassette player, Joysticks, many games. £250 Centronics printer £50 Tel: 0734 341866.
- Archimedes game author looking for anyone else with an ARC and interested in doing graphics. Genuine enthusiasm and effort required for not much money!! Tel: Mark 0272 652759.
- Archimedes 410 2MB Ram, 20 MB hard disc and Philips CM8833 Monitor 2900. Tel: Chesterfield 270730.
- Acorn 21mbyte hard disc £180 ono. master 512 processor. 1mbyte memory expansion mouse. All manuals 36 shareware discs all originals. £180 ono Tel: 0326 240734.
- Archimedes original software lingenuity presenter story £100. Silicon vision solid tools £250. Solid render £95. ACE computing Euclid £35. Mogul £10. Splice £15. Midnight tracer £40. Clares interdictor2 £17. Tel: 0883 348203 Evenings.
- Microvitec monitor high res colour £85. Pace dual drive 40/80 £45. Ref manuals parts 1/2 for Master £15. User guides BBC View/Sheet £5. Tel: 021 5568333.
- Wanted Z88 also Riscos DTP and art software. Tel: 0245 381288.
- Wanted Tractor unit for Epson FXBS printer. Tel: 081 455 8831 anytime.
- Games for Archimedes for sale also some educational discs all originals and in excellent condition, boxed and with instructions also BBC "Viewindex" disc. Tel: 0926 881507.
- A3000, CM8833 colour monitor, full documentation applications discs excellent condition £650. Tel: 0405 860607.
- Master 128-£300 ono. Bridge with 80/40 5.25 disc drive and 20 mb hard disc £300 ono. Philips green screen £35 ono Offers to Duncan Tel: 081 300 2450 Work - Tel: 0474 853655 Home.
- BBC B, OS 1.2, Acorn DFS, Two 40/80T drives, Colour monitor, Epson LX800 printer, Interword, Intersheet, Spellmaster, Romboard Inc 16k Ram, and games £195. Tel: Martin 081 368 1773.
- Z80 second processor, boxed unused, with software. Offers Tel: 0306 79411.
- Acorn/Philips Monochrome monitor 12", Hi-res with manual £45 Tel: 024531 438.
- Archimedes, BBC, Electron software for sale. Please ring 021 329 3173.
- A310, 4Mbyte RAM, 20Mbyte Hard Disc, Colour monitor. £700. Acorn DTP £80. 1st Word + £50. Epson LQ400 & Sheet feeder £170. Genesis 2 £80. BBC B, 40T drive, ROMS. £150. Panasonic KXP 1081 £120. Tel: Richard 0803 557843.
- BBC/Electron games for sale. Send S.A.E. to J Treadwell, 97 Chester Road, Southport PR9 7HH.
- A3000 2meg colour, stand, Acorn DTP,1st Word Plus and games £700. Epson MK100 type III wide-carriage printer and space saver stand £100. Tel: 081 969 2565.
- Master 512K DSDD 40/80 5.25" + 3.5"in plinth (only 2 months old), GEM + mouse, Interword, CPPS, Midi Interface, Spectrum Analyser, Cumana Touch Pad. Including ALL leads and documentation, software £550. Tel: 023559 628 evenings.
- A310 base unit, 2nd drive interface (Technomatic), external 3.5" and PSU. £600. Tel: 081 391 2582 evenings.
- BBC Model B issue 7, solidisk 256K SWRAM, DFS, Acorn DFS, ADFS, WW+, Iword, IVase, 40/80 5.25" drive. £200. Microvitec 1451 Monitor £150. Tel: 081 391 2582 evenings.
- Archimedes 410 4MB Ram, ARM3 upgrades 40MB hard disc excellent condition £975. Archimedes monitor £100. Tel: 0793 731334.

PLEASE PRINT THIS AD IN THE NEXT AVAILABLE ISSUE OF *THE MICRO USER*

Name

Address

Daytime Tel:

Cheque enclosed for £
(minimum £4 for 10 words)

I certify that any software offered for sale is original and not a copy

Signed

POST TO: Micro User Classifieds, Europa House, Adlington Park, Adlington, Macclesfield SK10 4NP

CONDITIONS

- This service is EXCLUSIVELY for the use of private readers. No trade ads will be allowed.
- To avoid encouraging software piracy, all ads will be carefully vetted before they are accepted.
- Ads can only be accepted on the form opposite (or a photocopy of it).
- There is no maximum to the number of words you include in your ad. if there is insufficient room on the form, continue on a separate sheet of paper.
- The cost is 40p per word, with a minimum of 10 words.
- **WE GUARANTEE your ad will appear in the next available issue of *The Micro User.***

The Micro User gui

GLOUCESTERSHIRE

AJL ELECTRONICS

BBC/MASTER/ARCHIMEDES SPECIALIST

FULL RANGE OF SHERSTON EDUCATIONAL SOFTWARE IN STOCK – BBC/ARCHIMEDES S.A.E. FOR CATALOGUE
MICROVITEC TO ARCHIMEDES MONITOR CONVERSION **£30 + VAT**
(Retains contrast control!)
Fast repair service on Acorn equipment

Telephone: (0452) 311031 Fax: (0452) 309125
24 HR ANSWER SERVICE

VISA

49 CALTON ROAD, GLOUCESTER GL1 5DZ

Specialists also in high performance satellite television systems
Members of The Confederation of Aerial Industries

SURREY

CALL **PRES** FOR Acorn

WE ARE A SPECIALIST ACORN SUPPLIER FROM COMPUTERS TO MONITORS, PRINTERS TO HARD DRIVES, GAMES TO BUSINESS SOFTWARE – IF YOU REQUIRE ANYTHING FOR YOUR ACORN MACHINE WHETHER IT BE A BBC OR ELECTRON, MASTER OR ARCHIMEDES

WE ARE AN
Acorn
APPROVED DEALER AND SERVICE CENTRE, OFFERING A FRIENDLY SERVICE AT COMPETITIVE RATES

THE LEARNING CURVE

A3000 & A5000 DEMONSTRATIONS AVAILABLE
CALL FOR ADVICE ON SPECIAL PACKAGES....
SEE OUR MAIN ADVERT IN THIS MAGAZINE

PRES Ltd, Box 319, Lightwater, Surrey, GU18 5PW
Tel. 0276 72046 • Fax 0276 51427

DEVON

BADGER MICROS
(DEVON)

• A3000 & LEARNING CURVE PACK •
• A5000, BBC MASTER •
+
Floppy & Hard Drives, RAM Upgrades, Monitors, Plinths, Printers, Discs, Disc Boxes, Printer Paper, Labels etc.
+
DTP Software, Wordprocessors, Spreadsheets etc.
• APPOINTED WATFORD DEALER •

Badger Micros, Badgers Hill,
Southerton, Ottery St Mary, Devon, EX11 1SE.
PLEASE PHONE FOR BEST PRICES
(0395) 68516

Authorised Acorn Dealer

VISA

AVON

C. J. COMPUTING

SPECIAL NEEDS

SALES • REPAIRS • SPECIAL NEEDS

Please contact us for all your Acorn computers (Hardware & Peripherals)

We specialise in tailoring computer systems for special needs

Tel:/Fax: (0454) 615905

Stoke Lodge, Bristol

THE LEARNING CURVE

DERBYSHIRE

MICROMANIA UK
SPECIALISTS IN QUALITY 2ND USER EQUIPMENT (0332) 830178

EQUIPMENT ALWAYS IN STOCK

Simply the Best!

Cheaper than all the rest!

EVERY-THING SERVICED PRIOR TO DESPATCH

SALES HOT-LINE:
(0332) 830178

MAIL CHEQUES TO:
MICROMANIA
9 GLAMIS CLOSE
OAKWOOD
DERBY
DE2 2QJ

Carriage Extra

Archimedes A5000 Multi-Synch System	£1,395
Archimedes A310	£495
Archimedes A310 Colour	£695
Archimedes A440 Colour	£995
BBC Master 128K/40T Drive/Monitor	£320
BBC Master 128K/Drive/Colour Monitor	£400
BBC B Iss 7/Drive/Monitor	£245
Microvitec Colour Monitors From	£130
Philips Colour Monitors From	£150
Philips High Res Green Screen	£45
Epson Printers From	£95

SPECIAL OFFERS

Archimedes A420 Base £795

1 Meg Upgrade for A3000 £38

EDUCATIONAL ORDERS WELCOME

ALL EQUIPMENT 3 MONTHS WARRANTY

WE BUY SECOND USER EX DEMO OR SURPLUS STOCK COMPUTER EQUIPMENT

PART EXCHANGE WELCOME

VISA

MIDDLESEX

JR Letronics Co

SUPER ARCHIMEDES COMPUTERS
A540 – A5000 – A3000 & OTHERS

- **Computer Peripherals**
- **Educational & Business Software**
- **Documentation**
- **Discs & Paper**

THE LEARNING CURVE

Acorn

☎ **081-977 8053**

Acorn

The Annexe, 2 Broad Street, Teddington, Middlesex TW11 8RF
After sales helpline – We try to help
Open: 10am-5pm Mon–Fri, 10am-2pm Sat

VISA

de to local dealers

CHESHIRE

LMR

Acorn
AUTHORISED
DEALER
SERVICE
CENTRE

Business **Education**
Technical Support **Inservice Training**
Home **Special Needs**

LEE MICROCOMPUTER REPAIRS

A comprehensive service to satisfy your requirements.

17a Marsland Road, Sale, Cheshire, M33 3HP
☎ 061 962 8872

WALES

CARDIGAN
Electronics

Computing and Electronics for Business Education & Leisure

YOUR ARCHIMEDES, A3000 & BBC SPECIALIST IN WEST WALES

Hardware-Software-Sales-Service-Support

ACORN DEALER FOR TEN YEARS

MAIL ORDER SERVICE

We are a major TANDY Electronics stockist too.
"Impression" Scanning and Laser Printing service

CLOSED WEDNESDAYS, OPEN SATURDAYS

VISA

Chancery Lane,
Cardigan,
Dyfed
SA43 1HD

0239 614483

BIRMINGHAM

DACO SYSTEMS

463 Warwick Road, Tyseley, Birmingham B11 2JP

Your Birmingham Acorn, Tulip, Goldstar & Osicom PC Dealer

• Special Needs • Business •
• Education • Home Use •

Tel: 021-706 8933

CLEVELAND

YARM COMPUTERS

HARDWARE – SOFTWARE – PERIPHERALS
SUPPLIES TO EDUCATION, BUSINESS AND HOME

ACORN DEALERS

GOLDSTAR PC's

THE LEARNING CURVE

TELEPHONE ORDERS WELCOME

WINPENNY HOUSE, 137 HIGH STREET
YARM, CLEVELAND TS15 9AY

E&OE

TEL: 0642 786922
FAX: 0642 783740

VISA

ESSEX/HERTFORDSHIRE

The Complete Service

FREE local delivery, FREE local training, FREE after sales support. Courses for beginners and experienced computer users, evening courses and correspondence courses for those with busy schedules. Large stock of Archimedes software available for demonstration. Comprehensive software and hardware design service. Computer and peripheral repairs.

Broadoak Computers

High Street
Hatfield Broad Oak
Near Bishops Stortford
CM22 7HE
Phone: 0279 718767
Fax: 0279 718596

LOTHIAN

SSERC GRAPHICS LIBRARIES

For Science & Technology Education

For Arc users of Draw, DTP, Magpie, Genesis, Sparkle etc.

Latest :- NOW 4 DISCS - SAME PRICE - with E&L boards, more ALPHA boards, interference patterns, more programs

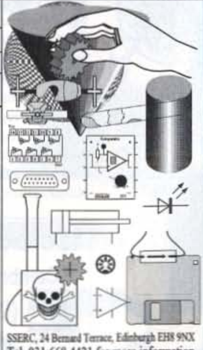
What the press says:

Educational Computing & Technology - "a veritable treasure trove of science and technology clip art.... an excellent resource ....Any DTP work will be enhanced by the quality artwork....."

RISC User - "an excellent product and must surely be invaluable to anyone who needs scientific drawings.....Well done SSERC"

IF YOU WANT TO RE-INVENT THE GRAPHICS WHEEL THEN IGNORE THIS ADVERT. IF YOU ARE AT ALL SERIOUS ABOUT PUTTING TOGETHER QUALITY DIAGRAMS FOR MINIMAL FINANCIAL OUTLAY AND SAVING VALUABLE PROFESSIONAL TIME THEN FIND OUT NOW HOW THE GRAPHICS LIBRARIES CAN HELP.

single user	site licence	Authority licence	Update disc £10
£30	£85	by negotiation	



SSERC, 24 Bernard Terrace, Edinburgh EH8 9NX
Tel. 031 668 4421 for more information
or send stamped A4 self-addressed envelope.

KENT

COMPUTEREYES

16 Starnes Court, Union Street, Maidstone, Kent

Archimedes specialist for the Kent area

☎ (0622) 751096

Family History

BBC/Master £21.76 inc.

Archimedes £26.77 inc.

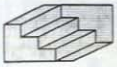
Software for MS-DOS & BBC/Acorn Machines

Micro-Aid Kildonan Courtyard,
Barrhill, GIRVAN, Ayrshire, KA26 OPS
Tel: 0465-82288 FAX available VISA/ACCESS

A3000 *Archimedes* *A5000*

Micro Studio

Graphics Library Packs for the Archimedes A5000 and BBC A3000



Transport Graphics Library	Draw format	£29.95
Designers Graphics Pack	Draw & Paint	£19.95
!Draw Mazes	Draw format	£19.95
The Seashore Guide	Draw format	£19.95
Science Graphics Pack	Draw format	£29.95
Illustrators Graphics	Paint format	£19.95
The Greetings Pack	Draw & Paint	£19.95
The Cartoon Collection	Paint format	£19.95
World Geography Maps	Draw format	£29.95
World Wildlife Pack	Paint format	£19.95
Tools Graphics Pack	Draw format	£29.95
Decorated Alphabet	Paint format	£19.95
History: Costume	Paint format	£19.95
Childrens Graphics	Draw & Paint	£19.95
Prehistoric Animals	Draw & Paint	£19.95
Nature Graphics Pack	Draw & Paint	£19.95
DTP Library Pack	Paint format	£29.95
Military History	Paint format	£19.95

22 Churchgate Street, SOHAM
Cambridgeshire CB7 5DS
(0353) 720433

Contex Computing

BANK MANAGER

Complete and versatile personal accounts program. Consistently acclaimed!

'data entry is a delight...professional...excellent product' Micro User April 86

Standard version: Enter cheques and receipts. Automatic date sequencing. Reconcile statements. Search, amend and delete. Analyze expenditure. Forward cash flow forecast. Budgets. Up to 36 bank accounts online, inter account transfers, 9999 standing orders, 99 analysis headings, over 4,000 postings on an 80tk diskette. Reports to screen or printer. Mix foreign currencies, graphics, password, file recovery, field editing, programmable reports.

Master/Compact version adds ADFS/hard disk support, sideways RAM, 40/80 col screen reports, and other enhancements.

Archimedes /A3000 adds high speed native mode, RAM disks, wild card analysis enquiries, sort and more. *'Impressed...ideal...easy to use' Micro User March 88*

Bank Manager (all versions; disk systems only) £25.00

BANK MANAGER BUSINESS UTILITY

For the club accounts or small business user. From the Bank Manager data files print "trial balance" or "P&L reports" via the programmable spreadsheet generator.

Business Utility Pack (needs the Bank Manager) £12.00

TYPING TUTOR

Quickly learn to touch type. Over 90 smoothly graded lessons graduate you from the basic home keys to complete keyboard mastery. Word scan or exact key checking, targets may be revised, rhythm metronome, key click, free format options. Recommended for adult education. ***Typing Tutor £15.00***

SPREADSHEET MK V

Low cost versatile spreadsheet. 26 cols, 900 (Arch/A3000) or 99 (B/Master) rows, many functions and facilities including programmable report writer and input scripts.

Spreadsheet MK V disk £15.00

All programs available in B, Master/Compact and Archimedes/A3000 versions. Archimedes/A3000 versions are RISC OS compatible

State type of computer (eg A3000, B, Master) and disk type (eg 3½" or 5¼" 40 track or 5¼" 80 track). Please add £1 P&P (Overseas £3.50)

CONTEX COMPUTING
(Ref MU), 15 Woodlands Close,
Cople, Bedford MK44 3UE
Tel: 0234 838347

SENLAC Computing Limited

Accounts	
Home Accounts	35.00
Financial Accountant	245.00
Arcounts Manager	351.32
Art/Graphics	
Arctist	19.00
Chameleon	23.95
smArt	54.00
Artisan 2	54.00
Illusionist	85.00
Render Bender 2	110.00
Revelation	81.00
!Tracer	57.00
Clip Art	
Graph. Fact., Vols 1-5	26.95
Mid. Graph. Draw 1 & 2	34.00
Micro Studio Packs	20.00
..and	31.00
Christmas Allsorts	17.50
Southern Printers Art 1	6.00
Communications	
ArcTerm 7	70.00
ArcComm 2	55.00
DTP/WP	
Poster	87.00
Impression 2	150.00
Impression Bus. Supp.	52.00
Impression Junior	81.00
Desktop Folio	94.00
EasiWriter	145.00
Easiword	35.00
Longman Outline Fonts	19.95
Databases	
Pinpoint	99.00
Flexifile	133.00
Multistore v2	255.00
Design	
Einstein	135.00
Euclid v2	58.50
Worra CAD	98.00
Education	
Jiglet	31.00
Jigsaw	31.00
Expansion	
Graphics Enhancer	195.00

Hypermedia	
Genesis 2	130.00
Magpie	56.00
Music	
Rhapsody 2	55.00
Score Draw	55.00
VoxBox	55.00
Oak Recorder	31.00
MIDI Tracker	14.00
MIDI/Sampler (Econet)	75.00
Midi Interface (S.Port)	43.00
Peripherals	
ScanLight Junior	192.00
ScanLight Junior 256	225.00
Joystick Interface (S. Port)	26.00

Don't pay until you receive your order!
Cash-on-Delivery is available on orders up to £350 for only £2.50 extra.

Printers	
LaserDirect HiRes 4	1050.00
Spreadsheets	
Schema	113.00
Pipedream 3	138.00
Utilities	
Arcticulate	19.00
Snippet	31.00
MultiFS	34.00
Compression	48.00
Equasor	48.00
ShowPage	138.00
FontFX	9.50
ShapeFX	9.50
Glimpse	9.00
Investigator 2.2	25.00
Speech!	16.50
Consumables	
TDK Discs 3½" (box 10)	
DS/DD, 800k	11.50
DS/HD, 1.6M (A5000)	15.00

Virgin Discs 3½" (box 10)	
DS/DD, 800k	8.50
DS/HD, 1.6M (A5000)	12.50
Games	
Air Supremacy	19.45
Apocalypse	24.95
Arcade Soccer	16.00
Ballarena	15.95

All prices include VAT, post & packing

Break 147 & Superpool	18.75
Cartoon Line, Part 1	19.50
Chocks Away v2	19.00
Chuck Rock	22.95
Crisis	14.00
Drop Ship	16.00
E-Type	16.00
Elite	37.95
Enter the Realm	18.75
Fine Racer	16.50
Fireball 2	14.00
Holed Out	16.00
Hostages	16.50
Inertia	16.00
Interdictor 2	29.95
Lemmings	22.95
Magnetic Scrolls Colln.: Fish, Corrpution., Gld of Thvs	28.95
Man-At-Arms	16.00
Man. Utd. Europe	22.95
Master Break	16.50
Poizone	16.50
Powerband	18.75
Rockfall	16.50
Saloon Cars	18.75
Super 3D Pool	16.50
Superior Golf + Cons. Kit	16.50
Tactic	15.95
The Real McCoy 1 or 2	24.95
The Thing of Darkness	21.95
The Wimp Game	16.00
Tower of Babel	19.75
Wonderland	27.99

Cheques/postal orders should be made payable to
SENLAC Computing Ltd. (MU)
P.O. Box 304
BRIGHTON, BN2 2TT
Don't forget to specify A3000/Archimedes/A5000!
Please send a S.A.E. for our current price list.

VAT Reg. No. 508 7594 16

Company Registration No. 2277309

Printing your roots

PRIZE letter

A FEW months ago I drew my family tree using !Draw on to an A0 sheet size. Since then I've been struggling to find a way to print this full size in A4 chunks on my dot matrix printer.

Acorn couldn't given me any advice. But I've found a way. Drag A4 page fulls of the A0 drawing into the Show box and print each page separately.

Accurate location of the movement of the drawing is achieved by using a grid size equal to either the width or height of an A4 page – less a bit to allow a small overlap.

I suggest a grid size of 20cm for horizontal movement and 29cm for vertical movement for a Portrait page. The simplest way of moving the complete drawing is to Group all the entities.

To print a complete A4 page, all margins must be set to zero using the Page Size sub-menu – from the menu button over the printer driver on the icon bar.

For other page sizes, the grid size should be changed to suit. You can tailor the choice of Landscape or Portrait to obtain the minimum number of pages to print.

Once printed, the A4 pages can be trimmed and glued together to obtain the full A0 drawing. – **B.J.Hogg, Camberley, Surrey.**

● This is certainly an ingenious solution. !Poster from 4Mation will split up large drawings automatically complete with marks to help you stick it back together.

Pascal search

I WANT to install Pascal on my BBC B+ and I've seen ISO Pascal chips advertised in magazines but only for the Archimedes, not for the BBC Micro. Do you know of anyone who sells these chips? – **Dipak Patel, Leeds, West Yorkshire.**

● Pascal definitely was available for the 8-bit machines. ISO Pascal was published by Acornsoft in early 1985, in fact *The Micro User* did a special offer on it. However it's no longer available.

In all cases like this your only option is to try the long standing dealers, like Watford Electronics and Technomatic, to see if they have any old stock. It's very important to make clear to the person you're speaking to that it's a very old product that may need searching for. But there's no guarantee you'll find one.

Help and hints

DO you know anything about the Canon BJ10e printer. Is it suitable for connection to the Archimedes and what quality is the print?

I was not too impressed by a demonstration I saw in Dixons. Most of the letters had white stripes through them.

I would be grateful if you could explain the Address Exception error I receive when in the desktop and using an application.

It also occurs when I'm dumping certain memory addresses. The Risc OS user guide offers little help, saying that it is simply caused by a bug in the application you are using. – **Andrew Murphy, Brentwood, Essex.**

● We have found the Canon Bubble jet printer to be very good, it uses Epson-compatible codes so it will work with the !PrinterDM printer driver. It also has the advantage of being almost silent.

The Hewlett-Packard DeskJet 500C is similar and works with the !PrinterLJ. However it is capable of colour printing which the Bubblejet isn't – a separate printer driver, available from Ace Computing, is needed. The white stripe problem is common to most matrix printers.

The ARM2 and ARM3 chips are capable of addressing 64Mbytes of ram directly but, as you know, there isn't that much in your machine. What happens is that the memory is divided into pages and the operating system shifts it around, allocating different number of pages to different areas of the machine.

An Address Exception occurs when there's an attempt to read from a memory address and there isn't any actual memory there. Clearly any application program that generates this error must have made the mistake of assuming it had memory that wasn't actually available.

Fontastic problems

MY collection of fonts has recently swelled to 22 different styles, thanks to a selection of PD discs.

My problem rests in that these fonts cannot all fit on a single disc. Risc OS applications which require fonts need to see a Filer window containing a fonts directory. The application then loads with the fonts in that directory.

As far as I know, there is no way to get more fonts into the application without reloading it.

And you can still only access one discful of fonts at a time. Is there any way of combining two discs of fonts in the one application? – **Kenneth MacLeod, Menstrie, Clack mannanshire.**

● There are a couple of ways to solve this: The brute force method requires a file compaction utility such as Compression or ArcFS. With these you can get more on to a disc, although file access will be slower.

The best way – and most costly – is to get a hard disc.

WANT to write to The Micro User? The address is:

Letters, The Micro User,
Europa House, Adlington
Park, Macclesfield SK10
4NP.

Writers of the most interesting letters receive a £10 prize.

Elk to Archie

I HAVE had an Acorn Electron for some time, and have read The Micro User *since* Electron User *stopped. Could you tell me whether the Watford Electronics View Printer Driver Rom is compatible with the Electron version of View?*

From reading the magazine I've become interested in upgrading to a 32-bit machine. However, I have a few queries I hope you can help me with.

What is the difference between the A3000 and A410/1, A420/1, A440/1 and the 540/1 machines that cause such a steep price increase? Also what was wrong with the 300 series and why is it no longer produced? – **G.M. Willis, Southbourne, Dorset.**

● The difference between the A3000 and A400 series is expansion capabilities. The A3000 has only one expansion card slot (external) while the 400s have four slots, the A3000 can only be expanded to 2Mb ram (theoretically) while the A400s can go to 4Mb.

There are various options for the A3000 that make it as expandable as the A400s, at a price.

The A540 was designed from the start to be a very fast machine for mainly scientific purposes. It uses the ARM3 chip and very fast memory chips. Other than that it is similar to the A400s in terms of expandability.

The A5000 completely replaces the A440, being as expandable and at least three times faster. And, in our opin-

➤

➤

ion, there's little point in buying any of the A400 series although there may well be some discounted stock as dealers try to offload them.

Printer matters

I BOUGHT an Amstrad DMP2000 for my Master and now use it with my Archimedes. It is a curious creature taking around 10 minutes to print each page. It also prints too heavily, leaving ink splotches at random intervals about the page. What would you suggest? – **Jon Harris, Epsom, Surrey.**

● The amount of time taken is not unusual, because the pages are drawn as graphics. You can speed it up by reducing the dots per inch setting on the printer driver, but the quality will suffer.

Flying start

I READ in your September issue that a reader was having problems running the disc version of Aviator on his Master 128.

The answer is to use the 8271 disc interface emulation. All that is needed is to put the disc in the drive and press Shift+Z+Break instead of the normal Shift+Break. This worked on my copy and on several other BBC B discs too. – **J. Woodthorps, Dunchurch, Warwickshire.**

Hitchhikers

WHILE using my Electron I typed some random Call commands. Reading through my advanced user guide, I found some addresses for the floppy disc controller. I typed some in and had interesting results. I have an Acorn's Plus 1+3. By mounting a disc and typing CALL and &FCCF I got this:

```
Rridgewater, sambridge,John
sox, Shris Surry,650
```

and then just rubbish. Another interesting one was, CALL &FC76:

```
pnumerous to mention): Ron
Qustin, Harry Rarman, Paul
Rond
```

and then more rubbish. Who are these people and how did they get into my computer? – **William Cooke and David Ranson, Potton, Beds**

● What you have found are the programmers' credits. It's very common for software writers to put messages into their code.

In this case you can see that there's been some encoding of the first letter of the surname and one of the names is Chris Curry, a co-founder of Acorn.

Give me power

I HAVE a BBC Master with a 5.25in and 3.5in drives as well as a LX-400 printer. Is there any way to expand my memory and be able to run IBM compatible programs, or expand my Master is any other way? – **Daniel Guest, Crewe, Cheshire.**

● To run PC compatible programs on a Master you'll need a 512 second processor but, like all these discontinued products, you have to search hard to find them. Try the Classifieds.

ALL programs printed in this magazine are exact reproductions of listings taken from running programs which have been thoroughly tested.

However, on the rare occasions when mistakes occur corrections are published as a matter of urgency.

Should you encounter error messages when you type in a program, they will almost certainly be the result of your own typing mistakes.

Unfortunately we cannot answer personal programming queries concerning these mistakes. Of course letters about suggested errors will be investigated without delay, but any replies found necessary will only appear in the letters pages.

Teletext by Cable

I read the interest the letter from Nicholas Close about teletext from Satellite TV. Users of Cable TV may be interested to know that they can have the same.

Take the signal from the converter box, which goes to the TV and connect it to the RF input of the teletext adapter. I take this signal to an ariel distribution amplifier which first amplifies it fefore splitting it into two or more outputs, one for the TV and the other for the teletext adapter.

My Morley adapter is connected to an Archimedes and tuning the adapter to: Channel 40; Frequency 622.25Mhz; Data &B3AB gives Skytext and so on.

As before, use the Cable converter box to change the channels while keeping the teletext page at 100.

British teletext uses Fastext (a system which when looking at a page on the screen, at the bottom shows four other subjects in red, green, yellow and blue. By selecting the appropriate function key for that colour, or selecting the coloured button on the remote TV handset will take you to the page relating to that subject without the need to enter any page numbers).

Teletext from Sky and another station called The Superchannel have five of these coloured choices magenta, red, green, yellow and blue. The last four work as normal but I have not been able to find the magenta key.

If you have saved any teletext pages to disc and you have access to the comm's package Hearsay then the saved pages can be reloaded as Viewdata files.

To do this, go into Hearsay and select the videdata option. When you select to load a file, the file names for the teletext pages will not appear to be highlighted but you can still load them in and then treat them as any viewdata file. – **Peter Hopkins, Peterborough**

Hard disc types

MY A3000 is frequently used and I find that I'm running out of space. I was considering upgrading the ram to 2Mb as well as buying a 20Mb hard disc.

I have had no previous experience with hard drives and was hoping you could explain the differences between SCSI, IDE and the ST506?

I've also come across many internal drives for the A400 range and understand how these can be housed.

But having found an ST506 including a podule from Watford Electronics, I was confused as to how I would house it without a racking system which is out of my budget. Would I be better with an external drive?

Being a subscriber I receive your monthly disc containing PD utilities, However, I keep getting the messages:

System resources cannot be found *or*

System resources cannot be found for FPE. *Can you help?* – **Robert Lawrence, Cheltenham, Gloucester.**

● For an A3000 hard disc upgrade there are a number of internal IDE drives available which are probably your best option particularly if you don't intend to add other expansion cards in the near future.

SCSI has the advantage that it's a complete interface that allows other products to be added to the bus.

However apart from tape streamers – for backing up hard discs – that are very expensive, there's not much else available to add. There's nothing wrong with ST506 drives, except that they're slow (by hard disc standards) and it will have to be an external drive.

The *System resources not found* error, and variations of it, can be solved by bringing up a filer window that contains !System.

Printer lines

*COULD you tell me how to get the line feed of my Star LC10 printer. The line feed will only work with some of my packages like AMX DTP and View. I have tried *FX6,2 and played with the DIP switches and I'm still puzzled.* – **S. Salmon, Burlesdon, Southampton.**

● This is a fairly common problem but there's no hard and fast rules about curing it. The control code that generates line feeds is usually Ascii code 10, but sometimes it's 13.

Printers may also have the option of automatically generate line feeds, in which case you may get double or even triple spacing of lines.

You can prevent the BBC Micro from sending certain codes to the printer with FX6. The number that follows it is filtered out and not sent, so *FX6,10 will prevent a code 10 from being sent. You can only filter one character at a time.

On the Model B and B+ there must be a filter character. *FX6,255 is a fairly safe option to prevent any filtering taking place. On the Master and Compact one of the Configure options:

```
*Configure NoIgnore
```

switches off filtering completely.

Unfortunately the situation is complicated by the software. Different packages expect different printer settings and a lot of 8-bit software will not allow you to alter the built-in expectations of the way the printer is setup.

FACT SYSTEMS (BARROW) LTD

UNIT 19, FOCUS 303 BUSINESS CENTRE, SOUTH WAY
WALWORTH IND. EST. ANDOVER, HANTS. SP10 5NY

		Base	Colour
A3000	Upgraded to 2Mb RAM	£572	£767
A3000	Learning Curve	£593	£788
A3000	Learning Curve 2Mb	£638	£833
410/1	Base	£854	£1049
420/1	Base	£1049	£1244
420/1	Learning Curve	£1065	£1260
A5000	2Mb, 40Mb HD, Multiscan		£1439
A5000	Learning Curve Multiscan		£1469
A540	Base	£2349	£2544

SPECIAL DEAL

Free Monitor Stand with Every A3000 Learning Curve

Acorn Ink Jet 300dpi Printer with A3000/A5000 L.Curve add £220 + VAT

We operate the Acorn Teachers Scheme

Monitors (free lead)

Acorn Stereo Colour Monitor	£195
Microvitec Cub3000	£199
Philips CM8833 Colour MkII	£210
TAXAN 775 Multiscan	£440

Accessories

A3000 Upgrade to 2Mb	£55
A3000 Upgrade to 4Mb	£179
A3000 Monitor Stand	£22
A3000 20Mb IDE Internal Drive	£199
A3000 45Mb Hard Card (SCSI)	£339
A3000 100Mb Hard Card (SCSI)	£679
A3000 Serial Upgrade	£18
A3000 User Port/Midi	£45
400/1 1Mb RAM	each £48
400/1 20Mb Hard Disk (ST506)	£169
400/1 40Mb Hard Disk (ST506)	£289
A5000 Upgrade to 4Mb RAM	£119
MIDI Expansion Card	£64
TV Modulator	£39

Languages

ISO Pascal, Fortran 77	each £85
ANSI 'C' Release 3	£129
Desktop 'C'	£189
Desktop Assembler	£129

Books (no VAT)

RISC OS Prog Ref Manual	£75
BBC BASIC Guide	£19
A3000 Technical Ref Manual	£29
Assembly Language	£14
Arc Operating System	£14

Utilities

Software Developers Toolbox	£145
Twin	£27
PC-Emulator (NEW)	£89
Investigator II	£22
Clares Toolkit Plus	£38
Hearsay	£52
ArcTerm 7	£62
Multi-FS	£30

Art

Artisan 2	£47
ARCtist	£19
Render Bender	£61

Business etc

1st Word Plus rel. 2	£62
Desk Top Folio	£79
Impression Junior	£79
Impression II	£140
Schema	£98
Pipedream 3	£119

Educational

Fun School 2 (all ages)	£16
Fun School 3 (all ages)	£21
Target Maths (RRR)	£16
Picture Book (RRR)	£16

Please add VAT at 17.5%
Carriage:
Software .... Free
Hardware, Other ...... £P.O.A.

Open Mon-Fri 9.30am-5.30pm
Sat 9.30am-4pm

Games

ARCticulate	£17
Boogie Buggy	£17
Break 147/Super Pool	£18
Chess 3D	£15
Chocks Away MkII	£18
Chocks Away Extra Missions	£15
Chuck Rock	£21
--ELITE--	£32
E-Type	£14.50
Grievous Bodily 'ARM	£21
Holed Out	£14
Interdictor 2	£26
Jahangir Kahn Squash	£19
Lemmings	£20
Manchester United Europe	£21
Micro Drive, Golf	£15
Pacmania	£16
Pandora's Box	£21
Provocator	£16
Saloon Cars	£18
The Real McCoy 1/2	(each) £21.50
Twin World	£15
X-Fire	£21

** Many More Games Available **

Printers (free lead)

STAR LC-20	£165
STAR LC-200 Colour	£195
STAR LC24-10	£195
STAR LC24-200	£240
STAR LC24-200 Colour	£279

ANDOVER (0264)334811

A310 memory from £99

8-chip design ensures low power consumption. Compatible with ARM3 upgrades, backplanes, hard discs etc. Larger OS ROM option. Four-layer circuitry reduces electrical noise for trouble-free operation. We have been upgrading 300 series computers for over 2 years. In that time, not a single upgrade which we have fitted has developed a fault and needed repair. *"We have had a lot of very positive feedback about the IFEL memory upgrades." Archive.*

2Mb RAM – £99
(4Mb version available. 2Mb board is upgradable to 4Mb)
Educational and quantity discounts apply.
Send or ring for our free information sheet. Then decide.

A5000 £1499 Acorn's new machine with RISC OS 3, multisync monitor, ARM3, and 40Mb drive. An extra 2Mb of RAM (4Mb total) is included free. Part exchanges considered.

A3000 RAM
– Only 8 RAM chips – low power consumption
– User fittable – no soldering required
– Available as a "bare board" (ie sockets, but no RAM)
– 4Mb – £148.95 2Mb – £55 Bare board – £25.50

SCSI Discs Fast (17mS) internal SCSI discs with a 2 year warranty. Price includes controller card and all cables and metalwork. For 300/400 series machines. 300 series require a backplane.
50Mb – £310 100Mb – £420 200Mb – £620
(Other sizes available. Please ask for details).

All prices exclude VAT
Further information and price list from:

IFEL, 36 Upland Drive, Derriford, Plymouth PL6 6BD.
(0752) 847286

TMJ Computer Software

39 Farmstead Road, Corby, Northants, NN18 0IE
Telephone 0536 69011
Online BBs Darkhaven - 0604 413716 (24hrs)

What you see is what you pay

Arc DFS	26.99
ArcTerm 7	69.95
ARCticulate	19.99
Air Supremacy	21.50
Ballarena	16.99
Bug Hunter In Space	15.99
Blaston	16.99
Boogie Buggie	19.99
Break 147 & Superpool	19.99
Blitz	19.99
Bambuzle	16.99
Bubble Fair	16.99
Chocks Away	19.99
Chocks Away Extra	16.99
Chocks Compendium	36.00
Chess 3D	16.99
Chequered Flag	21.99
Chuck Rock	21.50
Cataclysm	19.99
E-Type Compendium	19.99
Enter the Realm	19.99
Fine Racer	16.99
Grievous Bodily ARM	19.99
Holed Out Compendium	19.99
Home Accounts	39.99
Hostages	16.99
Interdictor 2	29.95
James Pond	21.99
Kerbang	16.99
Lemmings	21.50
Loopz	21.99
Magnetic Scrolls Compendium	30.99
Mad Professer Mariarti	16.99
Manchester United Football	20.99
Manchester United in Europe	21.99
Microdrive World Edition	12.99
Master Break	16.99
Mig 29 Super Fulcrum	31.99

Nevryon	16.99
Pacmania (Domark)	16.99
Powerband	19.99
Poizone	16.99
Pandoras Box	19.99
Rockfall	16.99
Spitfire Fury	??.??
Superior Golf	16.99
Schema	113.99
Speech	16.99
Saloon Cars	19.99
The Real McCoy	25.99
The Real McCoy 2	25.99
Trivial Pursuit	25.95
The Thing of Darkness	21.99
Top Banana	21.99
The Exotic Adv. of Sylvia Lane	19.99
Wonderland	29.99
World Championship Boxing	20.50
World Championship Squash	21.50
X-Fire	19.99
Zarch	14.99
Zelanites	19.99
Music Packages	
Rhapsody 2	52.99
Rhapsody Upgrade	13.50
Armadeus	69.95
Art Packages	
Atelier	89.99
Render Bender 2	113.99
Teenage Mutant Turtles	16.99
Tracer	55.00
Clip Art 1	30.00
Euclid RISC-OS	59.00
ARCtist	19.99
DTP	
Impression II	160.95
Impression Junior	87.95

Pipedream 3	144.95
Desktop Office	109.95
Compression	49.99
PC Emulator Version 1.7	113.99
Educational	
Fun School 2. Under 6	15.99
Fun School 2. 6 to 8	15.99
Fun School 2. Over 8	15.99
Fun School 3. Under 5	20.50
Fun School 3. 5 to 7	20.50
Fun School 3. Over 7	20.50
Let's Spell At Home	20.99
Let's Spell at the Shops	20.99
Let's Spell out and About	20.99
Things to do with Numbers	21.99
Things to do with Words	21.99
Hardware	
Delta Cat	31.99
Arc/A3000 Games Ctrl	35.99
Mouse/Joys. Split.	17.95
Micro Mouse	32.00
VIDI Archimedes	165.00
Odds and Ends	
3.5 inch disc boxes (80 cap.)	7.00
Printer Ribbons:	
KXP1080,1081,&1180	4.50
STAR LC10 & NX1000	3.00
Citizen 120D	4.50
Citizen Swift 24	4.50
Epson LQ400/500/550/850	4.50
Dust Covers:	
A3000 (Keyboard only)	6.99
A3000 & Monitor	9.99
Archimedes (2 piece)	9.99
Mouse mats	3.00
3.5 inch Head Cleaners	3.50

Discs!

3.5 inch DSDD	13 for £5.50
5.25 inch 96 tpi	25 for £8.50

CUMANA 1 MEG
A3000 UPGRADE
£54.99

All prices include VAT and P&P
Access and Visa Accepted
Open Mon-Fri 9.30am - 12.00pm
1.30pm - 5.30pm
Saturdays 9.30am - 1.00pm

SPECIAL OFFER BOX:

ELITE £34.99
Twin World and Iron Lord each only £14.50
Flight Simulator Bundle :
Interdictor II, Chocks Away + Extra Missions and MiG29 Fulcrum all for £95.00
Real McCoy 1 & 2 together only £49.00 (save £10)

Everything's a Bargain!

ADVERTISERS' INDEX

4 Mation....12
4th Dimension....52-53
Ace Computing....110
Advanced Computer....124
AJL Electronics....106
Al Systems....106
Alpine....142
Arcaynia....3
Arch Angel....3
Atomwide....10, 101
Automatic Services....118
Badger Micro's....134-135
Beebug.....12, 14, 16, 22-23, 26-27
Bell Computing....66
Birdtech....142
Black Knight....142
Broadoak....134-135
Calligraph....102
Cambridge International....70
Chelsfield Publications....118
CJ Computing....134-135
CJE Micros....34
Clares....130
Collage Computers....18-19
Colton Software....28
Computeck....98
Computer Concepts....113, 126
Computer Eyes....134-135
Computer Tutorial....102
Contex Computing....136
Dabhand....6-7
Daco Systems....134-135
Datastore....120
David Pilling....3
DEC....134-135
Deck Top Projects....129
Design Concept....118
Diamond Public Domain....3
Dragon soft....57
EMR....118
Eternia....45
Europress Direct.......143, 144, 145
Europress SW....122
Fact Systems....139
Ground Control Electronics....54
Hybrid....IBC
Ian Copestake SW....8-9, 33
IFEL....139
Integrex....73
JR Electronics....134-135
Krislais Software....48
Leemicro....134-135
Manor Court....106
MD Office....40
Micro Studio....136
Micro-aid....136
Micromania....134-135, 142
Minerva....108
Morley Electronics....2-3, 82
North-West Semerc....26
Norwich....110
Orion Computers....42-45
Pineapple....120
Pres....64-65, 134-135
Prime PD....3
Selective Software....142
Senlac....136
Skyfall PD....3
Slogger Computers....142
Smart Computers....68
Software Bargains....141
SSERC....134-135
Storm Software....128
Superior....OBC
Timestep Weather Systems....142
TMJ....139
Topologika....139
Turcan Research....125
Voltmace....125
Warehouse....59
Watford Electronics....84-97
We Serve....125
Yarm....134-135

A CRACKING NEW YEAR SUBSCRIPTION OFFER

PRICES SLASHED

THE MICRO USER HABIT YOU CAN'T GIVE UP!

Your favourite *Micro User* is selling so fast we can't keep up. That's why we're offering an easy way to ensure your favourite magazine is delivered to your door every month – and at a cut-price too!

Order your regular copy of *The Micro User* now and save £££'s on an annual subscription. It's the one habit you can't give up, and a New Year resolution that's easy to keep.

You can now choose to subscribe with or without the program-packed disc.

- A magazine-only subscription costs just £20 for 12 issues, packed with all the information you will ever need at a bargain price.
- Get in addition the exclusive monthly disc containing all the programs listed in the magazine. The combined subscription for owners of **BBC** 40 track and 80 track formats is only £23. That's just £3 extra for the TWELVE discs.
- There is good news for **Archimedes** subscribers too. Your exclusive monthly disc contains many additional programs. The combined subscription is just £25, a cracking £10 reduction.

Order the reduced price subscription now – and get *The Micro User* every month before it even reaches the shops!

THE MICRO USER
Volume 9 Number 11 January 1992
ART for ARC's sake
EXCLUSIVE PREVIEW
3D Construction Kit
SOUND SAMPLING
Software for 8 bit machines
ARCADE ACTION
Enter the battle arena
C'S A BREEZE
Write like the wind
SCREEN PRESERVER
Protect your 8 bit micro's monitor
For ALL users of the BBC Micro, Master and Archimedes series

DON'T MISS OUT – SUBSCRIBE TODAY!

THE MICRO USER

12-MONTH SUBSCRIPTION ORDER FORM

I wish to take out or renew my subscription to *The Micro User* and have ticked the format box below:

Magazine only

New subscription ☐ 2531 £20 Renewal subscription ☐ 2532 £20

Magazine + Disk

	5.25 40T	5.25 80T	3.5" ADFS*	3.5" Arch/A3000
New subscription – UK	☐ 2533 £23	☐ 2535 £23	☐ 2537 £25	☐ 2539 £25
Renewal subscription – UK	☐ 2534 £23	☐ 2536 £23	☐ 2538 £25	☐ 2540 £25
New subscription – Europe/Eire	☐ 2504 £45	☐ 2505 £45	☐ 2506 £49	☐ 2507 £49
Renewal subscription – Europe/Eire	☐ 2508 £45	☐ 2509 £45	☐ 2510 £49	☐ 2511 £49
New subscription – Overseas	☐ 2496 £65	☐ 2497 £65	☐ 2498 £69	☐ 2499 £69
Renewal Subscription – Overseas	☐ 2500 £65	☐ 2501 £65	☐ 2502 £69	☐ 2503 £69

*Suitable for Master Compact and Electrons with E00 ADFS

My machine is: ☐ Electron ☐ BBC B ☐ Master ☐ Master Compact ☐ Archimedes/A3000

I wish to pay by:

☐ Cheque/Eurocheque made payable to Europress Publications Ltd

☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect Expiry Date ☐ /

Name ______ Signed ______

Address ______

Post Code ______

Daytime phone number in case of queries ______ MU1

Send to: Europress Direct, FREEPOST, Ellesmere Port, South Wirral L65 3EB *(No stamp needed if posted in UK)*

Order at ANY time of the day or night

Don't forget to give your name, address and credit card number

By phone: **051-357 1275**

By fax: **051-357 2813**

General Enquiries: **051-357 2961**

Software Bargains and Mercury Games

Established for many years in MAIL ORDER for all Acorn computers!

Archimedes

	SRP	SALE
Arcade Games		
Bambuzle ***New!***	24.95	21.95
Blitz ***New!***	24.95	21.,95
Break 147 & Superpool	24.95	22.45
Bubble Fair	19.95	15.95
Cartoon Line	24.95	19.95
Catalysm	24.95	22.45
Chuck Rock	25.99	25.99
Elite	39.95	39.95
Grievous Bodily 'ARM	24.95	22.45
Iron Lord	19.95	15.95
James Pond ***New!***	25.99	25.99
Kerbang	14.95	11.95
Lemmings	25.99	25.99
Mad Professor Mariarti	20.39	15.95
Poizone	19.95	15.95
Provocator	19.95	17.95
Rockfall	19.95	15.95
Top Banana	25.99	22.50
Twinworld	19.95	15.95
Wonderland	35.75	29.75
X-Fire ***New!***	24.95	22.45
Zelanites The Onslaught	24.94	24.95
"Mind" Games		
Chess 3D	19.95	19.95
Simulation Games		
Air Supremacy	24.95	21.95
Chocks Away Compendium	39.95	35.95
Saloon Cars	24.95	22.45
Chequered Flag	24.95	21.95
Adventure Games		
Exotic Adventures .. S Lain	24.95	22.45
Enter the Realm	24.95	22.50
Pandora's Box ***New!***	24.95	22.45
Tower of Babel	24.99	24.99
Sport Games		
Manchester Utd Europe	25.99	25.99
Microdrive	20.39	15.95
Jahangir Khan W. Ch, Squash	25.99	21.95
World Champ. Boxing Mgr	25.53	21.95
Compendiums		
Magnetic Scrolls Collection	34.99	29.95
Real McCoy	29.95	26.95
Real McCoy 2	29.95	26.95
Leisure/Various		
Arctist	24.95	22.45
Rhapsody 2	61.95	51.95
Score Draw	61.95	54.95
Speech	19.95	15.95
Tracker	49.95	41.95
Trivial Pursuit	30.64	25.95
Turbo Type (Typing Tutor)	24.94	21.95
Utilities		
ALPS System	35.71	29.95
Artisan 2	61.95	51.95
Compression ***New!***	57.57	49.95
Creator	45.77	39.95
Desktop Assembler	175.08	149.95
Euclid	70.00	57.95
Graph Box Professional	151.58	129.95
Illusionist	99.95	89.95
Investigator Rel 2	27.95	23.50
PC Emulator V1.6	116.33	116.33
Pro Artisan	105.00	81.95
Render Bender 2	135.00	114.95
Shape FX	11.75	11.75
Tracer	61.25	51.95
Word Processors		
Easiwriter	176.25	149.95
Interword	34.07	28.95
Easiwriter	176.25	149.95
Educational		
Children's Graphics Pack	19.95	17.95

	SRP	SALE
Coffee (9-15yrs)	32.84	29.95
Converta-Key	19.95	17.95
DataWord	19.95	17.95
Decorated Alphabet Pack	19.95	17.95
Farmer Giles	20.39	17.35
Farmer Giles 2	20.39	17.35
First Words & Pictures	25.85	21.95
Flight Path	32.84	29.95
Freddy Teddy (3-7yrs)	23.44	19.95
Freddy Teddy's Adventure	19.95	17.95
Fun School 2 0-6yrs	20.99	15.95
Fun School 2 6-8yrs	20.99	15.95
Fun School 2 8+yrs	20.99	15.95
Fun School 3 0-5yrs ***New!***	24.99	21.95
Fun School 3 5-7yrs ***New!***	24.99	21.95
Fun School 3 7+yrs ***New!***	24.99	21.95
Giant Killer	20.39	18.35
Giant Killer Support Disc	17.88	15.95
History Costume Library	19.95	17.95
House of Numbers (6-13yrs)	25.85	21.95
Imagine	39.95	36.95
Letters & Pictures (6-8yrs)	23.50	19.95
Maps & Landscapes (9-14yrs)	25.85	21.95
Money Matters	19.95	17.95
Nature Libary	19.95	17.95
Numbers/Pictures (4-6+yrs)	23.50	19.95
Numerator	77.55	77.55
Ollie Octopus Sketchpad	16.39	14.95
Picture Book	19.95	17.95
Prehistoric Animals Pack	19.95	17.95
PrimeArt	93.94	79.95
Puncman 1&2 (7-13+)	23.50	19.95
Puncman 3&4 (8-14+)	23.50	19.95
Puncman 5, 6, & 7 (8-15+)	23.50	19.95
Revelation	89.30	89.30
Reversals	23.50	19.95
Search & Rescue (9-15yrs)	32.84	29.95
Seasame St. Number Count	19.99	17.95
Seasame St. Letters for you	19.99	17.95
Spelling Week By Wk (6-14)	25.85	21.95
Spellbook (4-9yrs)	25.50	21.95
Target Maths	19.95	17.95
TinyLogo/Tiny Draw (4-9yrs)	35.19	31.95
Tools Graphics Library	29.95	27.95
World Geography Maps Pack	29.95	27.95
World Wildlife Pack	19.95	17.95
Communications		
ArcComm V2	63.45	63.45
Arcterm 7	79.95	67.95
Desktop Publishing		
Clip Art Set 1	35.19	29.95
Impression 2	198.57	145.95
Impression Junior	105.69	81.95
Ovation	116.33	91.95
Peripherals & hardware		
Arch Joystick Interface (Serial P)	28.14	26.95
Clares Micro Mouse	32.00	27.50
Delta Cat Joystick	34.95	31.95
Graphics Enhancer	222.08	195.95
Hard Disc Companion	39.84	34.95
Scan-Light Junior 300/400	222.08	209.95
Scan-Light Junior A3000	233.83	209.95
Scan-Light Senior 300/400	468.83	445.95
Scan-Light Senior A3000	468.83	445.95
Computer Aided Design		
SolidTOOLS	375.00	337.50
Instructional Videos		
Up & Running	14.95	-
Text Processing	14.95	-
Data Handling	14.95	-
Art/Graphics	14.95	-

(SRP = Suggested Retail Price) All prices include VAT @ 17.5%

This is only a selection of our range of software for the Arch!
Please 'phone or write for our catalogue - **IT'S ABSOLUTELY FREE!**

Software Bargains & Mercury Games
Dept MU12, C/O Northwood House, North Street, LEEDS LS7 2AA
TEL: 0532 436300 FAX: 0532 423289

This month's special offer for the Arch!

JOYSTICKS

Pack One Serial Port Interface & 1 X Quickshot 3 Turbo **£33.95**

Pack Two Serial Port Interface & 2 X Quickshot 3 Turbo **£44.95**

Pack Three Serial Port Interface & 1 X Superpro Atuo joystick **£34.95**

Pack Four Serial Port Interface & 2 X Superpro Auto **£45.95**

Printers

Panasonic KX-P1081	9pin dot matrix	£159.95
Panasonic KX-P1170	9pin dot matrix	£169.95
Panasoinic 1124i	24pin dot matrix	£254.95
Seikosha 1900 AI	9pin dot matrix	£114.95
Seikosha SP2000	9pin dot matrix	£159.95
Seikosha SL92	24pin dot matrix	£249.95

Prices include VAT, cable & delivery!

(Delivery free UK mainland only, excluding Scottish Highlands)
** Full specifcations available on request **

Exclusive!

Unused BBC B's

High Specification BBCs for only £150!
(Includes, DFS, Econet, a word processor & Speech ROMs)

Variety of special bundle packs available to include a BBC B & Cumana 5.25" Disc Drive from only £254.95

Please write or 'phone for further information

BBC & ELE

Send for our Catalogue!	BBC/ELE	B-Disc	Cpct
Arcade Soccer	6.50	8.50	8.95
Colossus 4 Chess (40t)	7.95	12.25	12.25
E-Type	6.50	9.75	10.50
Elite	9.95	11.95	15.95
Exile	9.95	11.95	15.95
Fun School 2 (0-6 yrs)	8.95	11.95	12.50
Fun School 2 (6-8 yrs)	8.95	11.95	12.50
Fun School 2 (8+ yrs)	8.95	11.95	12.50
Fun School 3 (0-5 yrs) (BBC only)	9.95	13.95	-
Fun School 3 (5-7 yrs) (BBC only)	9.95	13.95	-
Fun School 3 (7+ yrs) (BBC only)	9.95	13.95	-
Holed Out	8.50	9.75	10.50
Holed Out Extra Crses 1	6.50	7.75	8.50
Holed Out Extra Crses 2	6.50	7.75	8.50
Hostages	7.95	9.95	11.95
Master Break	7.95	9.95	11.95
Micro Power Magic 1 *	5.95	6.95	7.75
Micro Power Magic 2 *	5.95	6.95	7.75
Micro Power Magic 3 *	-	6.95	-
Mini Office 2 * (BBC only)	10.95	13.95	17.95
Mini Office 2 M128 *	-	15.95	-
Nevryon	-	9.75	10.50
Play it Again Sam 1 to 10 (Each)	6.95	8.95	10.50
Play it Again Sam 11 to 14 (Each)	7.95	9.95	11.95
Play it Again Sam 15 & 16 (Each)	9.95	11.95	15.95
Q-Master ***New!*** (BBC Only)	-	12.95	13.95
Repton infinity	9.95	11.95	15.95
Sim City	9.95	11.95	15.95
Speech (BBC only)	7.95	9.95	11.95
Superior Collection 1 (BBC only)	6.95	8.95	10.50
Superior Collection 2 (BBC only)	6.95	8.95	10.50
Superior Colection 3 (Ele only)	6.95	-	-
Tank Attack (40t)	9.95	11.95	-
U.I.M. (Needs 16k Sideways RAM)	-	12.95	14.25
White Magic 1 or 2 (each)	6.50	9.75	10.50

(* Please state 40t or 80t disc)

* Access/Visa Welcome
* Please add 95p P&P (Europe £2.50, Outside Europe £4.50)
* All prices include VAT @ 17.5%
* Goods despatched within 48 hrs, (subject to availability)
* Educational discount of 30% off SRP (not Sale price) available on most Archimedes software; Offical Order No. or school headed notepaper required - minimum order value £30.00 for invoicing, otherwise cheque with order.

(Prices are correct at the time of going to press, E&OE)

EQUIPMENT ALWAYS IN STOCK

Simply the Best!

MICROMANIA UK

SPECIALISTS IN QUALITY 2ND USER EQUIPMENT (0332) 830178

Cheaper than all the rest!

EVERYTHING SERVICED PRIOR TO DISPATCH

SALES
HOTLINE:
(0332) 830178

JANUARY SALE !

PART - EXCHANGE DEALS

MAIL CHEQUES TO:
MICROMANIA
9 GLAMIS CLOSE
OAKWOOD
DERBY
DE2 2QJ

A3000 Base taking BBC B with DFS	£450
A3000 Colour taking BBC B with DFS	£635
A3000 Base taking Master 128k	£395
A3000 Colour taking Master 128k	£565
A3000 Base taking 6310 BASF	£295
A440 Taking A310 BASF	£950
Master 128k/Drive/Monitor taking BBC B	£270

ALL EQUIPMENT 3 MONTHS WARRANTY

Access

(0332) 830178

VISA

PART EXCHANGE WELCOME

Educational trade-ins welcome.

NEW

UltraSonic Sound System £30.00

The **only** fully RISC OS compliant, multi-tasking sound effect and music system. Music may be used in ***Creator*** games and demos or simply for your own enjoyment. Includes Music Editor, Tracker converter, Sample converter, PD playback module, seven demo tunes and over 150 sound samples on two discs. *"A convenient way to create tunes"* ***Micro User, October 1991***

Creator Arcade Games Designer £38.95

Features: Multi-tasking, animated sprites, sound effects, music, screen designer, attack waves, flight paths, scrolling stars, demo games, sample sprites, sounds and music. ***NEW: Creator Support Disc*** (sprite compactor and other utilities) £19.95. ***Creator*** add-on discs (£5 each): ***Sprite Library #1, Sound Effects #1.*** *"Impressive ease of use"*. ***BBC Acorn User, July 1991.***

ALPS Adventure System £34.95

With ***ALPS*** you can create professional-standard illustrated text adventures. As ***Archive Magazine*** said, ALPS is *"a powerful and easy to use application."* ***ALPS Support disc*** for text and graphics compression: £19.95.

Alpine Software, Dept MU1, PO Box 25, Portadown, Craigavon, BT63 5UT
Access/Visa: ☎ 0762 342510. UK p+p: Free; EC: add £2.50; Others: £3.50

BLACK KNIGHT SUPPLIES

PROUDLY PRESENT THE

ADVENTURE MAPPING PAD

- ★ Get more enjoyment from your adventures.
- ★ Spend more time playing less time mapping.
- ★ A valuable aid for solving & designing adventures.

£9.99 **inc VAT**
+ £1.45 p&p

Please send cheque payable to:
BLACK KNIGHT SUPPLIES,
Unit 15, Longcauseway Mill,
Farnworth, Bolton BL4 9BQ
Tel: 0204 791525

SLOGGER

Expand your Electron computer with Sloggers latest products:-

CLICK is an expansion unit supplied in a standard Acorn Cartridge and contains a 32k ROM programmed with the CLICK system as well as 32k Battery Backed RAM (NOT Sideways RAM), Calendar Clock (same as MASTER 128), battery (recharged automatically), push button switch and control hardware. The CLICK software is too extensive to list here but supports ADFS, DFS, Latest Tape to Disk, Screen Dump, Editors, Address Book, Automatic Appointments, Calendar, Alarm, and much more, all at a push of a button. Date and Time are continuously displayed throughout the various facilities. The screen is restored on exit from CLICK. **Price £59.95**

SP64i is Sloggers latest upgrade. This expansion unit fits inside the Electron computer lid and offers 3 Sideways ROM/RAM sockets, User Port for Mouse and is complete with the Stop Press 64 Desk Top Publishing software. The DTP is upwards compatible with the AMS Stop Press but is more powerful, infinitely easier to use and runs under DFS, ADFS (Page 1D00 or E00) in fact any disk system. The DTP requires the Master RAM Board. **Price £79.95**

For full details of CLICK or SP64i please 'phone or write, or alternatively send an addressed foolscap envelope with 50p stamp for the latest 30+ page catalogue of these and all other Slogger products for the Acorn Electron.

SLOGGER COMPUTERS, ST JUST, PENZANCE, CORNWALL TR19 7RZ
Tel: (0736) 787272

Weather Data

Weather Satellite Systems Now available for the Acorn Archimedes A310 and A3030. This Meteosat system comes complete including everything from the Antenna to the software. Animation is standard allowing the dynamic process of weather fronts to be monitored and tracked. High resolution images of 800 pixels by 800 lines can be stored and manipulated in colour or grey scales on any standard colour monitor. Acorn Change FSI registered and compatible. Capable of receiving up to 400 images every day this remarkable system costs just £799.00

Other Timestep products include a fully featured **LANDSAT** image Processor with 20 field study images and three full colour manuals. Acorn Change FSI registered and compatible at only £99.95

PC Globe and **PC USA** are full colour graphical databases of the world with an amazing amount of retrievable data. The special Timestep education price is only £59.95

Send for our full catalogue.

Timestep Weather Systems
Wickambrook Newmarket, CB8 8QA England.
Tel: 0440 820040 Fax: 0440 820281

Educational Adventures A3000/Archimedes

Little Red Riding Hood (ages 5-8) £17.04

"This is an excellent package" – Archimedes World

Shylock Gnomes (ages 10-15) £18.50

"An excellent & fun program...deserves to be a classroom classic" – Micro User

SELECTIVE SOFTWARE
64 Brooks Road, Street, Somerset BA16 0PP
VISA **Tel (0458) 43079** Access

DIAMOND-PUBLIC-DOMAIN

For The Archimedes
Over 450 Discs Available
Graphics-Utilities-Draw-Files-Sprites-Applications-SoundTracker
Clip-Art-Sonix Super Sounds-Games & Demos

For First Class Dispatch **Same Day**

640meg Hard-Drives
Full Height
12 m/sec
£995

Discs Are Only £1.00 Each. This Includes Recorded Delivery & Package

For Catalogue/Demo Disc With Over 1400k Of Useful 'GOODIES' Send £1.25 To-
Mike Witkiss, 86 Meadowbank, Moor Lane, Holway
Holywell, CLWYD. CH8 7EF

COLOUR

PRINTING & SCANNING SERVICE

For the Archimedes. Also 256 greyscale scanning & 600x600dpi laser printing. Using Paintjet and Laser Direct printers. Please telephone or write for details.

Books as reviewed in last months Micro User	
Desktop Publishing on the Archimedes	£12.95
Good Manners in Desktop Publishing	£5.95
First Impression, A tutorial guide. (Book & 2 discs in case)	£29.95
Software (Special Prices)	
Revelation 2 (The Arc image processor)	£99.00
Magpie (multi media your colour scans)	£54
Chameleon (change those draw colours)	£25

Equipment

Used Archimedes 440 with 4mb memory & 20mb HD, Epson GQ3500 laser printer with HP emulation and mem. upgrade, plus hand scanner & software.
£1100 cash on collection or delivery extra.
Yes only £1100 for complete 440 system.

ACORN
THE
BUSINESS

Please make cheques payable to BIRDTECH. **Prices are fully inclusive except 440.**

Access

BIRDTECH, 16 Weynor Gardens, Kelling,
Holt, Norfolk NR25 7EQ. Tel. 0263 70 669

VISA

THE MICRO USER Reader offers

TO ORDER, PLEASE USE THE FORM ON PAGE 146

Passing an exam . . . applying for a job . . . whatever you want to do in life you need to be able to SPELL!

There's mounting alarm about the appalling standards of spelling among Britain's schoolchildren. MPs, teachers, parents and employers are all stressing the vital importance of being able to spell correctly.

Yet most homes have what could be the ideal means of teaching spelling – the computer.

Instead of zapping aliens it could be turned into the best weapon of all to deal a body blow to bad spelling. With the help of a brilliant new software package that not only makes practising spelling painless but also loads of fun as well.

SPELL! is unique. It lets the user learn at his or her own pace. They can take as long as they like – or take on the computer in a high-speed challenge!

And this one package is ideal for everyone – with the lowest age group suitable for under-5s, while the more advanced words will stretch even the most able students.

It includes five different tests, each making use of more than 5,000 words – so much variety that you'll never get bored.

SPELL!

- ***5 DIFFERENT TESTS***
- ***OVER 5,000 WORDS***
- ***FOR AGES 5 TO 15***

SPELL! only costs £8.95. It is now available on disc and tape for six of the most popular home computers.

LEARNING CAN BE FUN!

A computer is an ideal teaching tool for young children – if you have the right software.

Fun School 2 consists of colourful and exciting programs that have been carefully designed by a team of educationalists. The computer itself monitors the child's progress. The skill level - initially set by the parents - is automatically adjusted to suit the child's ability, so children can enjoy learning at their own pace.

With 3 age groups (under 6's, 6-8 years old and over 8's) ***Fun School 2*** is the ideal way to introduce youngsters to the joys of using a computer.

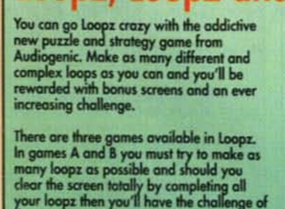
FOR A LIMITED PERIOD ONLY we are able to offer ***Fun School 2*** at substantially reduced prices.

DATABASE EDUCATIONAL SOFTWARE

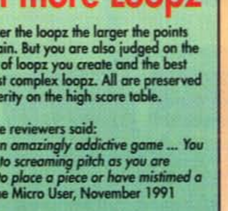
FOR DETAILS OF PRICES, FORMATS, AND HOW TO ORDER, TURN TO THE ORDER FORM

Loopz

NEW



Tape	*£8.95*
40/80t	*£11.95*
3.5" Arch	*£19.95*



Loopz, Loopz and yet more Loopz

You can go Loopz crazy with the addictive new puzzle and strategy game from Audiogenic. Make as many different and complex loops as you can and you'll be rewarded with bonus screens and an ever increasing challenge.

There are three games available in Loopz. In games A and B you must try to make as many loopz as possible and should you clear the screen totally by completing all your loopz then you'll have the challenge of the Bonus screen. In game B your loopz in the bonus screen don't disappear and you must be especially clever to amass maximum bonus screens.

Game C challenges both your memory and your puzzle skill and all three games entice you to play just one more time.

The larger the loopz the larger the points you'll gain. But you are also judged on the number of loopz you create and the best and most complex loopz. All are preserved for posterity on the high score table.

What the reviewers said:
This is an amazingly addictive game ... You can get to screaming pitch as you are unable to place a piece or have mistimed a drop. The Micro User, November 1991

And what's the really good thing about this game? It's available for ALL Acorn owners, Electron, BBC B, Master, BBC A3000, A5000 and Archimedes range. And better yet, you can buy this game directly from The Micro User for a limited period only and save pounds.

STAR LC-20 PRINTER

The very latest in 10" budget printers from Star offering excellent Near Letter Quality printing at a very low price. Compact and surprisingly versatile, the LC-20 will take the longest documents in its stride. Ideally suited to small business users as well as the enthusiast, the LC-20 is a natural successor to the best selling, award-winning LC-10.

- ✔ Low cost 9-pin 80 column dot matrix printer
- ✔ 180 cps draft/45 cps Near Letter Quality
- ✔ 4Kb buffer
- ✔ Paper Parking with push feed tractor
- ✔ Panel Lock Mode (for software override)
- ✔ 8 resident Near Letter Quality fonts. Courier, Sanserif, Orator 1 & 2 and Italic versions
- ✔ Quiet mode

£149.95
inc. 1 years warranty + VAT
(Delivery £10)

Also available:

STAR LC-200 Col Printer	**£205.95**
STAR LC24-200C Col Printer	**£289.95**

FUN SCHOOL!

Educational Bundle

Ages 2-5	Ages 5-8	Ages 8-12
Alphabet	Balance	Anagram
Colours	Castle	Codebreaker
Counting	Derrick	Dog Duck Corn
House	Fred's Words	Guessing
Magic Garden	Hilo	Hangman
Matchmaker	Maths Test	Maths Hike
Numbers	Mouser	Nim
Pelican	Number Signs	Odd Man Out
Seaside	Seawall	Pelmanism
Snap	Super Spell	Towers of Hanoi

- Use your BBC Micro to teach and amuse your children at the same time.
- Three packages crammed full of educational programs – and so easy to use!
- Each program has been educationally approved after extensive testing in the classroom

TAPE	5.25"DISC
£9.95	£12.95

3.5" Master £24.95

NURSERY RHYMES 5

fun-packed educational programs . . . for young children everywhere

This delightful collection of programs is based around children's favourite Nursery Rhymes. There's plenty of sparkling colour, sound and captivating animation to keep them riveted – and as they play they'll be learning all the way.

- ★ Tell the time with Hickory Dickory Dock.
- ★ Assemble the jigsaw in Humpty Dumpty.
- ★ Learn to spell with Jack and Jill.
- ★ Match the animals in See Saw Marjory Daw.
- ★ Play an exciting game in Hey Diddle Diddle.

It's Amazing It's Radical It's the Rolling Ruler

A complete drawing board in one simple unit. With a rolling ruler you can draw:

- ★ Horizontal parallel lines
- ★ Vertical parallel lines
- ★ Perfect right angles with ease
- ★ Any other angles from 1° to 359°
- ★ Clever circles

Available in two sizes 22cm (8in) and 30cm (12in) this great offer gets you both rolling rulers for just £6.50 (RRP £9.99)

It's innovative design gives the new rolling ruler the ability to draw vertical and horizontal lines without lifting it off the paper, parallel lines, angles, circles, musical staves and graphs with ease, making it ideal for the home, the office, schools, workshops and 3D design work.

NEW!
TEN of the BEST!
EDUCATIONAL GAMES

Packed full of some of the best educational games available for the BBC Micro, the new Ten of the Best Educational Games is the ideal way for your children to learn about maths, spelling, anagrams, telling the time, general knowledge, and even the rudiments of running a business!

Specially compiled by the *Electron* and *Micro User*, teams to give a good grounding in all aspects of learning, and at the very special price of only £5.95 on tape, or £6.95 on disc, this collection is a treat you and your children cannot afford to miss!

Give your children hours of fun, and help them to learn the easy way by ordering your copy today

Tape £5.95
Disc £6.95

THE PERFECT PAIR

The best-selling, award-winning BBC software is now joined by THE definitive guide

A Dabhand Guide
Mini Office II
DABS PRESS

The Program

Mini Office II is the highly-acclaimed suite of integrated programs which turn your computer into a versatile business machine.

It's the perfect package to increase your personal productivity – with more than 400,000 satisfied users across the complete Mini Office range.

The Book

The Dabhand Guide to Mini Office II is a brand new book to help you get the most out of the software. It not only contains the facts, but also the kinds of hints and tips that can only be built up through years of computer use.

More than a manual, the guide assumes nothing. Beginning with the first sentences typed into the editor, you are led through al aspects of using the system, up to the most advanced techniques.

All the examples are also on an accompanying disc which even includes a very useful routine to print out large spreadsheets sideways.

CLASSIC GAMES COMPENDIUM

We've brought together some of the most popular compilations ever to have appeared in *The Micro User* for this special offer. For a limited period, we are offering them on four 5.25" discs for the give-away price of £14.95!

TEN of the BEST!

Games

Dino
Hunkie Egg
Diamond Quest
Stellar Rescue
Fruit Machine
Karate Warrior
Maltese Cross
Othello
Witch Hunt
Soccer Manager

WHAT YOU GET:

- ★ 9 Classic Card and Board Games Volume 1
- ★ 9 Classic Card and Board Games Volume 2
- ★ Ten of the Best Games
- ★ Classic Arcade Games

9 Classic card & board games
9 Classic card & board games
THE MICRO USER
SPECIAL
CLASSIC ARCADE GAMES

Special Offer

SAVE £40

ACORNSOFT LANGUAGES
FORTH

Acornsoft Forth Rom

~~£49.95~~

£9.95

Reduced to clear while stocks last

PLEASE USE THE ORDER FORM ON PAGE 146

Boost your Archimedes or BBC Micro's sound output with

SOUNDBLASTER

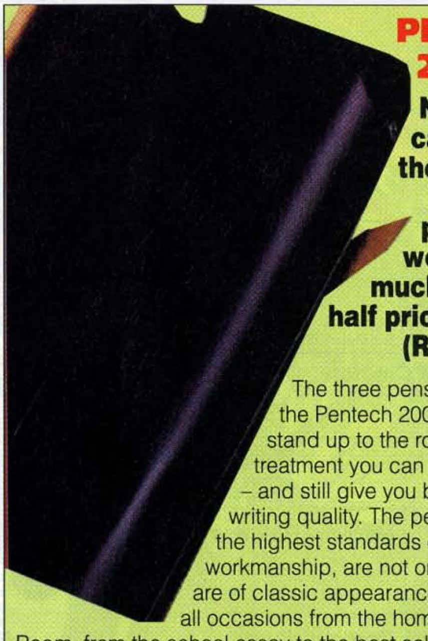
Extend the sound capabilites of your BBC Micro, Archimedes, A3000 or Music 5000 by routing the output through the Soundblaster's high quality amplifier and speakers.

The up to the minute amplifier implements the latest microchip technology to produce an earshattering output. Twin volume controls enable you to adjust the output and balance to suit.
The quality 50 watt speakers consist of a woofer for thumping bass output, a mid-range unit for crisp music and effects and a tiny tweeter which pumps out the highest frequencies the ear can hear.

The package comes complete with mains adaptor and full instructions. No soldering is required – simply plug in, boot up your favourite software and turn up the volume.

The essential peripheral for all games players and musicians

ONLY £47.95



PEN TECH 2000

Now you can own the toughest set of pens in the world - for much less than half price! (RRP £39.95)

The three pens that make up the Pentech 2000 pen set can stand up to the roughest treatment you can inflict on them – and still give you best possible writing quality. The pens, made to the highest standards of workmanship, are not only robust but are of classic appearance suitable for all occasions from the home to the Board Room, from the school essay to the best selling novel.

Available in Matt Black or Silver for £14.95 per set, two sets one in each colour only £20.00

FontStyle

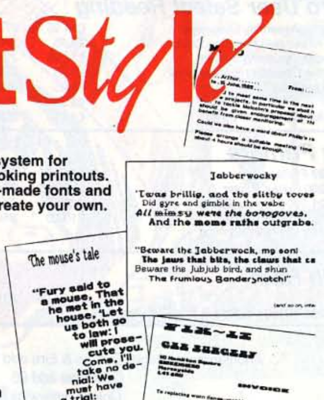
Fontstyle is a versatile system for creating professional looking printouts. It comes with two ready-made fonts and a designer so you can create your own.

Plus you can now get a set of four discs containing an extra 64 fonts!

Fontstyle is so easy to use. You just type in your text using your favourite word processor – enter the easy-to-remember formatting codes and save it. Then just load in the FontStyle program and you'll have superb results within minutes.

Some of FontStyle's features

- ***Professional-looking results from 9 pin printers***
- ***Simple to use***
- ***Fast draft mode***
- ***64 fonts available***
- ***Up to 8 fonts in any paragraph***
- ***Print any font in different dimensions***
- ***Temporary or hanging indents***
- ***Dynamic control over page layout***
- ***Flexible and easy-to-use font designer***
- ***Ideal for letterheads, invoices, newsletters, memos and so on***
- ***All popular word processors supported***



...Arthur......
15 June 1989...
From: ...
...to meet some time in the next ... projects, in particular we shall ... to tackle Malcolm's proposal about ... should be given encouragement or the ... benefit from closer monitoring.
Could we also have a word about Philip's ra...
Please arrange a suitable meeting time about 4 hours should be enough.

Jabberwocky

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.

"Beware the Jabberwock, my son!
The jaws that bite, the claws that ca
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"

(and so on, infin

The mouse's tale

"Fury said to a mouse, That he met in the house, 'Let us both go to law: I will prosecute you. Come, I'll take no denial: We must have a trial: For really this morning I've nothing to do.' Said the mouse to the cur, 'Such a trial, dear Sir, with no jury or judge, would be wasting our breath.' 'I'll be judge, I'll be jury,' Said cunning old Fury: 'I'll try the whole cause, and

INVOICE

To replacing worn flange-grabble

parts
labour
TOTAL
+15% VAT
GRAND TOTAL

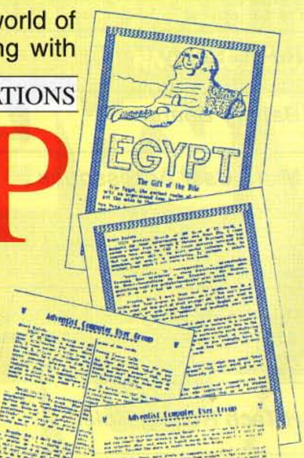
FontStyle	
5.25in disc	£9.95
3.5in disc (BBC ADFS)	£10.95
Archimedes (Using emulator)	£11.95

Set of 64 Fonts (4 discs)	
5.25in disc	£14.95
3.5in disc (BBC/Archimedes)	£19.95

Take a step into the world of professional publishing with

DATABASE PUBLICATIONS

DTP



This is an easy-to-use and flexible page design system for producing high-quality printouts through your Epson compatible printer. It comes with four of its own fonts to get you started plus a Font Designer to keep you going.

Some of the features of Database Publications DTP

- Independent control of bold, italic, 'thin' and underline characteristics of the system font
- Proportional spacing of both external and system fonts
- Stretching and compressing of any area
- Pixel editing via zoom facility
- Up to A5 page design
- No special disc format
- Four fonts provided
- Font Designer supplied
- Built-in Graphic designer
- Import text or type direct
- Can import cut-outs
- Built-in Mode converter

Database Publications' DTP

5.25in DFS 40/80 track disc (only) £14.95

Due to the complexity of the program the fill routines will not function correctly with the B+, Master or Compact – all other features are compatible

PLEASE USE THE ORDER FORM ON PAGE 146

THE MICRO USER READER OFFERS

Valid to 31.1.92

Back Issues

July 1991	£2.00	*2552*	☐	Oct 1991	£2.00	*2555*	☐
Aug 1991	£2.00	*2553*	☐	Nov 1991	£2.50	*2556*	☐
Sept 1991	£2.00	*2554*	☐	Dec 1991	£2.50	*2557*	☐

July-December Bundle (6 issues)	£11.00	*2133*	☐

Add £3 for Europe & Eire/£12 Overseas

December BBC Tape	£4.95	*2684*	☐
December 40t 5.25 Disc	£7.95	*2685*	☐
December 80t 5.25 Disc	£7.95	*2686*	☐
December 3.5 Disc	£9.95	*2687*	☐
December Archimedes Disc	£9.95	*2688*	☐

Fontstyle

Fontstyle	5.25" (40/80T)	£9.95	*2108*	☐
Fontstyle	3.5" (BBC ADFS)	£10.95	*2109*	☐
Fontstyle	(Achimedes)	£11.95	*2110*	☐
64 Fonts	5.25" (40T)	£14.95	*2115*	☐
64 Fonts	5.25" (80T)	£14.95	*2116*	☐
64 Fonts	3.5" (BBC/Archimedes)	£19.95	*2117*	☐

Arcade Game Creator

(DFS only)

Cassette & Manual	£6.95	*2722*	☐
40/80t disc	£9.95	*2723*	☐

Head Coach

OFFER OF THE MONTH

5.25" disc 40/80t	£17.95	*2153*	☐
3.5" disc	£17.95	*2154*	☐

Fun School 1 + Nursery Rhymes

Cassette	£9.95	*2090*	☐
5.25" Disc BBC B, B+ (40T)	£12.95	*2091*	☐
5.25" Disc BBC B, B+ (80T)	£12.95	*2092*	☐
3.5" Master Version	£24.95	*2093*	☐

Classic Games Compendium

5.25" Disc (40T)	£14.95	*2758*	☐
5.25" Disc (80T)	£14.95	*2759*	☐

Ten of the Best Educational Programs *(DFS only)*

Cassette	£5.95	*2189*	☐
5.25" Disc (40T)	£6.95	*2190*	☐
5.25" Disc (80T)	£6.95	*2191*	☐

Re-Ink Spray

NEW

£12.95 *2103* ☐

Battery Charger

£19.95 *2123* ☐

Micro User Accessories

Dust Covers	BBC B & B+	£3.95	2220	☐
	BBC Master	£3.95	2222	☐
	BBC Master Compact	£3.95	2224	☐
Binder		£5.95	2756	☐
Disk Storage Box	5.25" discs only	£4.95	2052	☐

Pen Tech 2000

Matt Black	£14.95	*2763*	☐
Silver	£14.95	*2764*	☐
Silver + Black	£20.00	*2765*	☐

HiTech Rolling Ruler

£6.50 *2087* ☐

Perfect Pair

£ p

Available For:	MO2	Example Book	Example Disc	Price	Code	Please Tick
Tape users	●	●	-	£19.95	*2271*	☐
Model B, B+ (40T disc)	●	●	-	£21.95	*2272*	☐
Model B, B+ (80T disc)	●	●	-	£21.95	*2273*	☐
Master (5.25" 40T disc)	●	●	-	£24.95	*2281*	☐
Master (5.25" 80T disc)	●	●	-	£24.95	*2276*	☐
Model B, B+ (40T disc)	●	●	●	£29.95	*2274*	☐
Model B, B+ (80T disc)	●	●	●	£29.95	*2275*	☐
Master (5.25" 40T disc)	●	●	●	£32.95	*2282*	☐
Master (5.25" 80T disc)	●	●	●	£32.95	*2277*	☐

Spell

Compact/Arch/Elec 3.5"	£8.95	*3612*	☐
BBC 5.25" 40T	£8.95	*3610*	☐
BBC 5.25" 80T	£8.95	*3611*	☐
BBC/Elec Tape	£8.95	*3617*	☐
Amiga	£8.95	*3614*	☐
ST	£8.95	*3613*	☐
PC 3.5"	£8.95	*3616*	☐
PC 5.25"	£8.95	*3615*	☐

Fun School 2

NEW

	BBC Tape			BBC 40t			BBC 80t			Archimedes		
Under 6 years	£8.95	*2169*	☐	£10.95	*2173*	☐	£10.95	*2180*	☐	£16.95	*2184*	☐
6-8 years	£8.95	*2170*	☐	£10.95	*2174*	☐	£10.95	*2181*	☐	£16.95	*2185*	☐
Over 8 years	£8.95	*2171*	☐	£10.95	*2175*	☐	£10.95	*2182*	☐	£16.95	*2186*	☐

BBC tape all three ages	£17.95	*2172*	☐
BBC 40t all three ages	£24.95	*2179*	☐
BBC 80t all three ages	£24.95	*2183*	☐
BBC Arch all three ages	£39.95	*2187*	☐

Loopz

NEW

Tape	£8.95	*2126*	☐
40T Only	£11.95	*2127*	☐
80T Only	£11.95	*2140*	☐
3.5" Arch	£19.95	*2128*	☐

Database Publications DTP *(see page 103)*

5.25" DFS 40 Track	£14.95	*2145*	☐
5.25" DFS 80 Track	£14.95	*2146*	☐

Sound Blaster

£47.95 *2088* ☐

Micro User Select Reading

Archimedes Assembly Language	£14.95	*2781*	☐
Disc for Assembly Language Book	£3.95	*2782*	☐
Archimedes Operating System	£14.95	*2783*	☐
Disc for the Operating System Book	£3.95	*2784*	☐
Archimedes First Steps	£9.95	*2785*	☐
Basic V	£9.95	*2786*	☐
Getting Started in BBC Basic	£4.95	*2761*	☐

Star Printers

NEW

Star LC20 Printer	£149.95	*2141*	☐
Star LC200 Colour Printer	£205.95	*2142*	☐
Star LC24-200C Colour Printer	£289.95	*2143*	☐
Parallel Centronics Cable	£10.00	*2144*	☐

Add £10 for delivery (UK only)

Forth Rom

£9.95 *2019* ☐

Add £4 per Rom for Europe & Erie £15 Overseas

Addition for postage: Europe & Eire add £4 ☐
Overseas add £6 ☐
Unless otherwise indicated

➡ ➡ ➡ ➡ ➡ ➡ ➡ ➡ ➡ **TOTAL** ____

Send to: Europress Direct, FREEPOST,
Ellesmere Port, South Wirral L65 3EB
(No stamp needed if posted in UK)
Products are normally despatched within 48 hours of receipt
but delivery of certain items could take up to 28 days

ORDER at any time of the day or night

Don't forget to give your name, address and credit card number

By phone: ***051-357 1275***

By Fax: ***051-357 2813***

General Enquiries: ***051-357 2961***

Payment: Please indicate method (✓)

☐ Cheque/Eurocheque made payable to **Europress Direct**

☐ Access/Mastercard/Eurocard/Barclaycard/Visa/Connect

No. ____ ____ ____ ____

Expiry Date: /

Name .... Signed....................................

Address..

.... Post Code ....

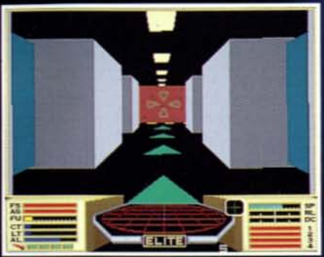
Daytime telephone number in case of queries..

MU1

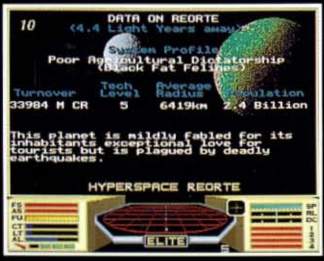
NAME: ELITE
RATING: THE BEST-SELLING HOME COMPUTER GAME
STATUS: NOW FOR THE ACORN ARCHIMEDES, A3000 AND

MICRO USER
verdict:
100%

RIGHT ON COMMANDER!


FS
AS
FU
CT
LT
AL
ELITE
SP
RL
DC
1
2
3
4
S

INCOMING MISSILE
ELITE



10

DATA ON REORTE
(4.4 Light Years away)

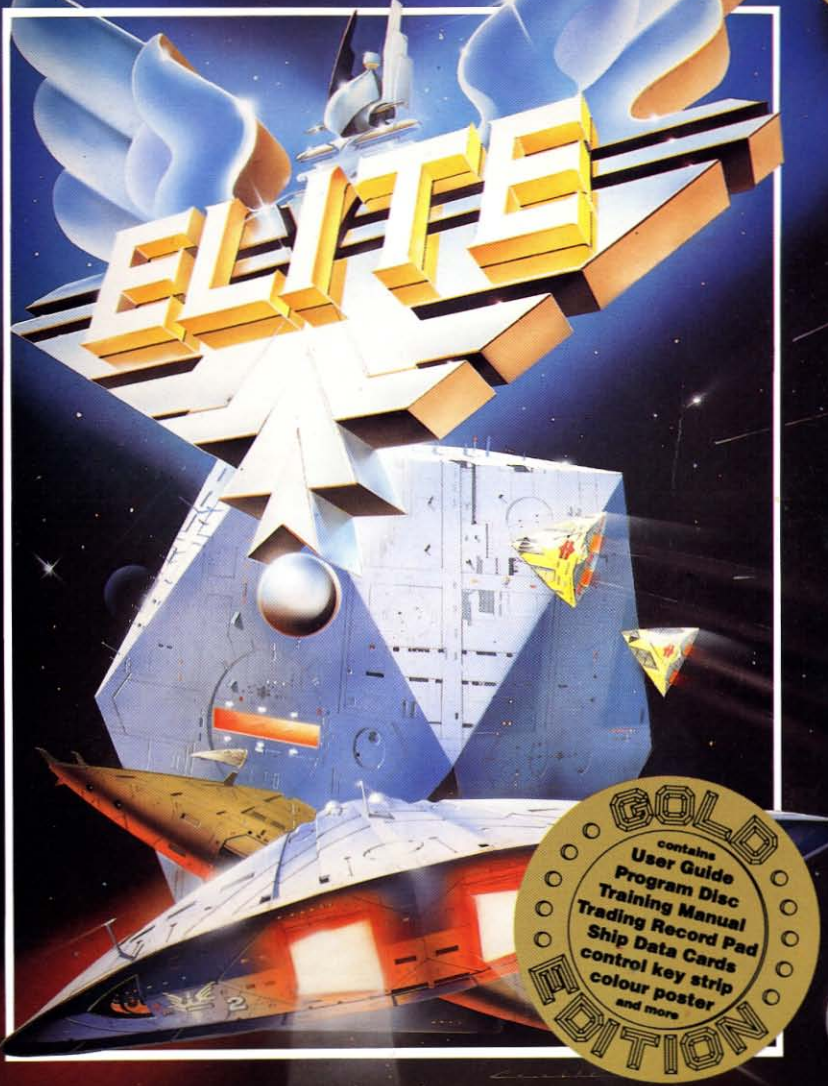
System Profile
Poor Agricultural Dictatorship
(Black Fat Felines)

Turnover	Tech Level	Average Radius	Population
33984 M CR	5	6419km	2.4 Billion

This planet is mildly fabled for its inhabitants exceptional love for tourists but is plagued by deadly earthquakes.

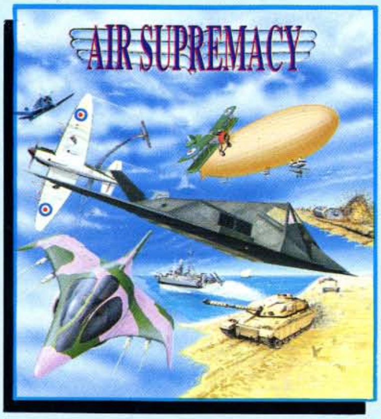
HYPERSPACE REORTE

DOCKING COMPUTERS ON
ELITE


ELITE
GOLD EDITION
contains
User Guide
Program Disc
Training Manual
Trading Record Pad
Ship Data Cards
control key strip
colour poster
and more

HYBRID PRESENTS IAN BELL & DAVID BRABEN'S "ELITE"
by WARREN BURCH & CLIVE GRINGRAS for ACORN ARCHIMEDES 1MB RAM RISC-OS
£39.95 CHEQUE OR POSTAL ORDER TO HYBRID
88 BUTT LANE MILTON CAMBRIDGE CB4 6DG TELEPHONE 0223 861522

SUPERIOR SOFTWARE



Pacific 1944

Arabia 1991

AIR SUPREMACY

Combat Strategy and Action... in the Air, on Land and at Sea

In this totally new type of game/simulation, you can choose to swap between aircraft and ground or sea combat forces, as the battle develops. You start in 1918 in Europe, with biplanes and tanks, then proceed to level 2 in 1944 in the Pacific, with fighter aircraft and gunboats. Level 3 in 1991 involves jet aircraft and desert tanks, and finally to 2150 with futuristic aircraft and rapid attack hovercraft. As you progress, the action becomes faster and more difficult with the ordnance increasingly comprehensive. Mouse or keyboard control.

A3000/Archimedes

MASTER BREAK

Snooker-Style Trivia Quiz Game for 1 to 4 Players

Six categories of questions: SCIENCE & NATURE, POP MUSIC, GEOGRAPHY, SPORTS & PASTIMES, ARTS and HISTORY. Over 1500 questions in the BBC Micro/Electron version. Over 2000 questions in the A3000/Archimedes version, including digitised picture and digitised sound questions.

In the 1 player game, try to get the highest break - you might even manage the maximum break of 147. In the 2 to 4 player game, compete against your friends and family for the highest score and highest break.

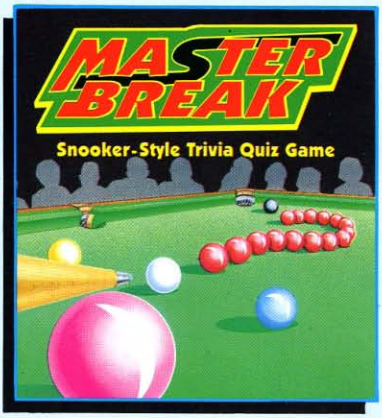
Start your frame with an easy red question, then choose your colour - have you the nerve to choose the black ball question? You've used all your PASSES and the ball is OVER THE POCKET - if you miss, it's a FOUL SHOT!

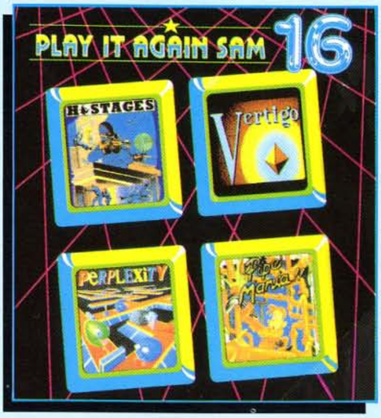
ALL THE FUN AND CHALLENGE OF A TRIVIA QUIZ AND SNOOKER MATCH ROLLED INTO ONE ENTHRALLING GAME.

BBC Micro/Master, Electron & A3000/Archimedes

BBC Micro/Master

A3000/Archimedes





Hostages

Vertigo

PLAY IT AGAIN SAM 16

A New Action-Packed Four-Game Compilation

HOSTAGES

Commando action and strategic planning. Place your snipers, abseil down the Embassy and smash through the windows to rescue the hostages. Superb graphics and sounds. Keyboard or joystick control.

"We are used to big blockbuster games from Superior, and Hostages is no exception"... Micro User

PERPLEXITY

Three-dimensional strategy game for all Repton and Pacman fans. Puzzle your way through 16 graphically brilliant mazes.

"A classic for your collection, but you may end up smashing your Beeb in frustration"...BBC Acorn User

BBC Micro/Master & Electron

VERTIGO

A brand-new release by Superior. Five levels of fun and skill as you try to balance your way around fifty different weird and wonderful structures. The addictiveness of play that makes for a classic.

Superb music and sound effects. Joystick option (BBC Micro /Master version). Enhanced BBC Master disc version.

PIPEMANIA

The brilliant and highly acclaimed game from Empire Software. Frustration as you try to join the pipes and let the flooz flow. Joystick option (BBC Micro/Master version). One or two player options.

"A classic puzzle arcade game that is so addictive, it should come with a Government Health Warning"...Computer & Video Games

AIR SUPREMACY

A3000/Archimedes 3 ½"Disc	£24.95

MASTER BREAK

BBC Micro/Electron Cassette	£9.95
Master Compact 3½"Disc	£14.95
BBC Micro 5¼"Disc	£11.95
A3000/Archimedes 3½"Disc	£19.95

PLAY IT AGAIN SAM 16

BBC Micro/Electron Cassette	£12.95
BBC Micro 5¼"Disc	£14.95
Master Compact 3½"Disc	£19.95

BBC Micro Cassettes & BBC Micro 5¼" Discs are compatible with BBC B, B+ & Master 128 computers. Screen pictures show the BBC Master versions of the games, unless stated otherwise.

We have in stock over 30 different titles for the BBC Micro/Master and Acorn Electron computers including such great games as: ELITE, REVS + REVS 4 TRACKS, EXILE, SPEECH! A QUESTION OF SPORT, REPTON INFINITY and SIM CITY, and the compilation titles: ACORNSOFT HITS 1 & 2, SUPERIOR COLLECTIONS 1, 2 & 3 and PLAY IT AGAIN SAMS 1 to 15. All are available for immediate despatch.

Our A3000/Archimedes titles include great classics such as ZARCH, CONQUEROR and REPTON 3 (now with enhanced graphics), SUPERIOR GOLF, and the new, highly praised, speech synthesiser, SPEECH! Also the action-packed HOSTAGES game.

Please write to the address below or telephone for a full list of Superior Software games.

SUPERIOR SOFTWARE
ACORNSOFT

(Superior Software is a trading name of Superior Microcomputing Ltd.)
Dept. J2, P.O. Box 6, Brigg, S. Humberside DN20 9NH. Tel: (0652) 658585

PLEASE MAKE CHEQUES
PAYABLE TO "SUPERIOR SOFTWARE."

Access VISA

24 HOUR TELEPHONE
ANSWERING SERVICE FOR ORDERS

OUR GUARANTEE

- All mail orders are despatched by first-class post
- Postage and packing is free
- Cassettes and discs that are faulty on receipt will be replaced immediately

(This does not affect your statutory rights)